MD RECEIVER

KMD-X91/PS970R

SERVICE MANUAL

KENWOOD

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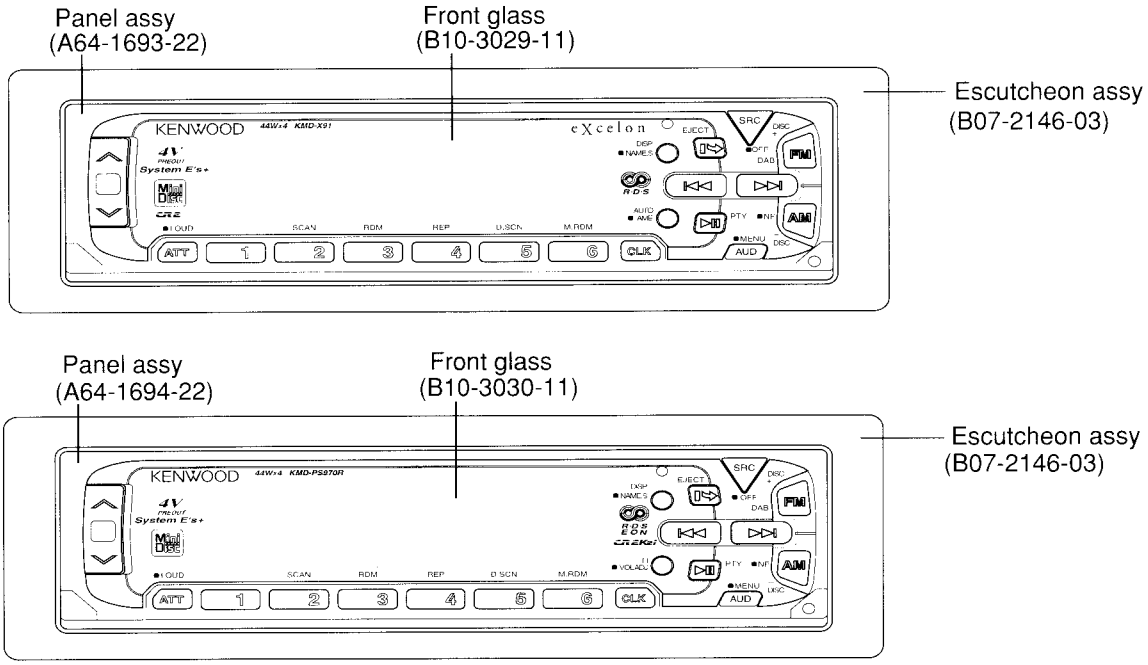
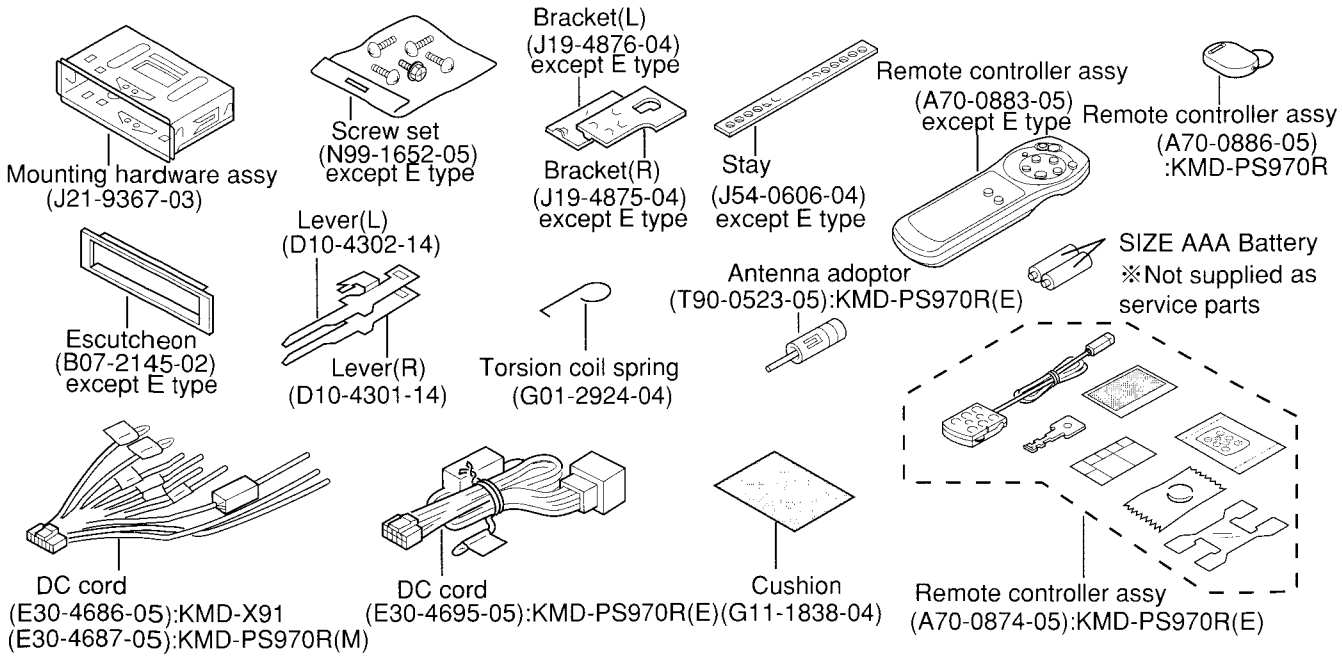
CORRECTION

● **This service manual does not include information on the MD mechanism assembly (explodedview, parts list, schematic diagram or mechanism description).**
For such information, refer to the MD mechanism assembly manual (X92-3390-00, 0-01, X92-3560-00, X92-3580-00:B51-7461-10).





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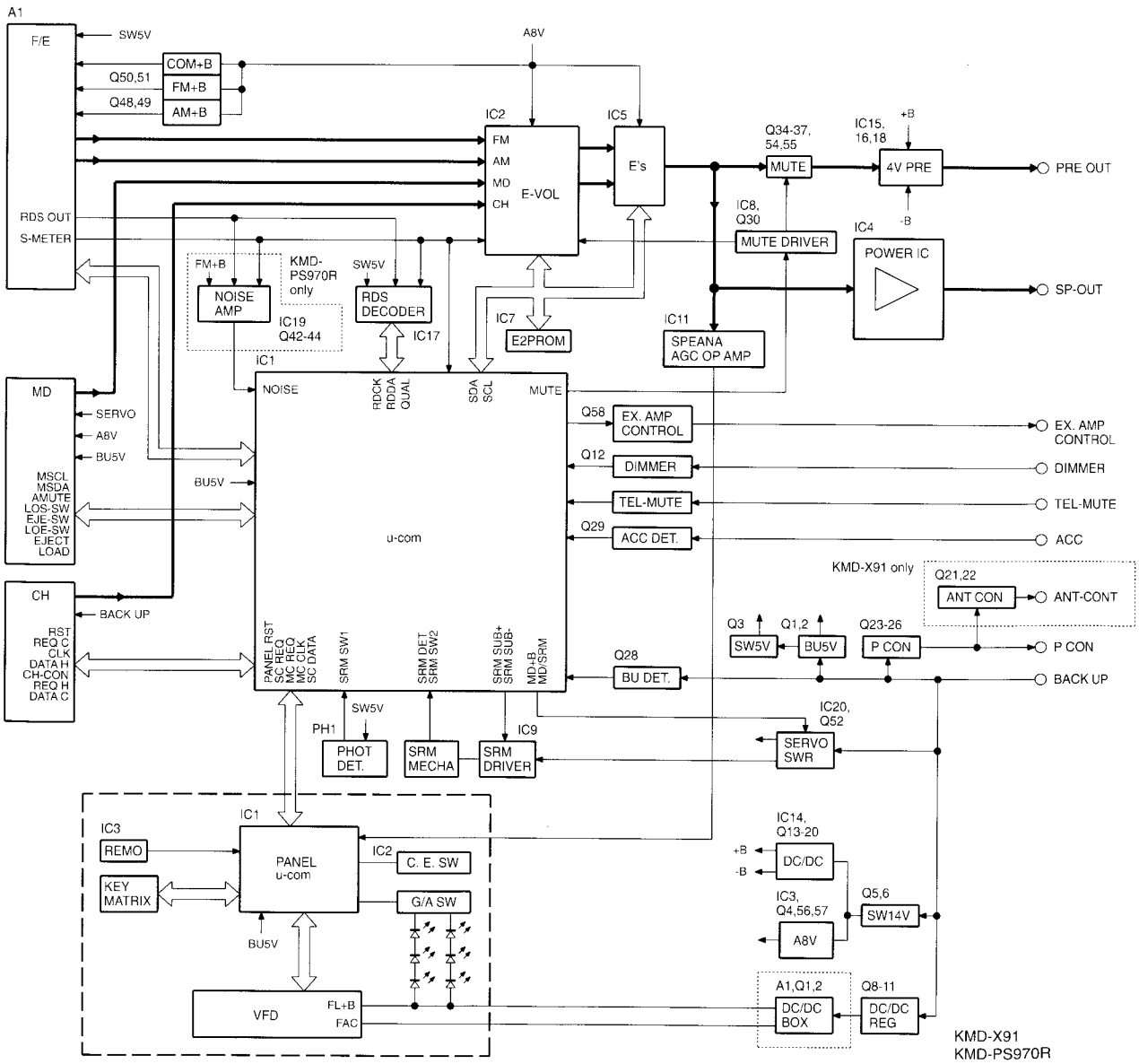
BLOCK DIAGRAM



COMPONENT DESCRIPTION

● **SWITCH UNIT (X13-9390-10)**

Ref.No.	Component Name	Appication/Function	Operation/Condition/Compatibility
IC1	UPD784214GC025	Panel MI-COM.	
IC2	BA3830F	BPF IC	
IC3	RS-171	Remote control light sensor	
Q1	DTA114YK	ED1 VDD ON/OFF	On at base "L"
Q2	DTA144EK	Remote sensor power SW	On at base "L"
Q3	DTC114EK	Blanking SW	On at base "H"
Q4	2SB1188 (Q,R)	Constant current	
Q5	DTC114EK	FL +B detect	On at base "H"
Q6	2SC2412K	Green illumination ON/OFF	On at base "H"
Q7	2SC2412K	Amber illumination ON/OFF	On at base "H"
Q8	DTA124EK	SC CON ON/OFF	On at base "L"

● **RELECTRIC UNIT (X25-824X-XX)**

Ref.No.	Component Name	Appication/Function	Operation/Condition/Compatibility
IC1	UPD784215GC099	System MI-COM.	
IC2	TDA7400	E-VOL. & NC MPX	
IC3	M5237ML	AVR IC	
IC4	TDA7386	Power IC	
IC5	TDA7401	HPF&LPF SW	System E's IC
IC6	PST9130NR	Reset IC	"L":detection voltage below 3.7V
IC7	BR24C01AF	EEPROM	
IC8	TC74HC02AF	Mute logic	
IC9	BA6287F	Motor driver	
IC11	NJM4565M-TE2	Speana & A.G.C. amp.	
IC14	TC7662BE0A	Power supply for pre out amp.	DC/DC converter
IC15	NJM4565M-TE2	Rear pre out amp.	
IC16	NJM4565M-TE2	NON-FADER pre out amp.	
IC17	TDA7479D	RDS decoder	
IC18	NJM4565M-TE2	Front pre out amp.	
IC19	NJM4565M-TE2	Noise detection amp.	
IC20	LM2675M-ADJ	MD/PANEL AVR	DC/DC converter
Q1	2SB1565F (E,F)	BU 5V AVR	inverted darlington connection
Q2	2SC2412K		On during BU applied
Q3	2SA1037K	SW 5V	On at base "L"
Q4	2SB1565F (E,F)	Audio 8V AVR	AVR on at Q56 base "H"
Q56	DTC144EK		
Q57	DTA124EK		
Q5	DTA124EK	P ON SW	On at Q6 base "H"
Q6	DTC144EK		
Q8	DTA124EK	DC/DC Power SW	ON at Q9 base "H"
Q9	DTC124EK		
Q10	2SB1443		

COMPONENT DESCRIPTION

Ref.No.	Component Name	Appication/Function	Operation/Condition/Compatibility
Q11	2SC2412K	DC/DC Power SW	ON at Q9 base "H"
Q12	DTC144EK	DIMMER SW	On at base "H" while ILLUMINATION applied
Q13	2SB1443	+B SW	On at Q14 base "H"
Q14	2SC2412K		
Q15	2SA1037K	-9V AVR	
Q16	2SC2412K		
Q17	2SA1037K		
Q18	2SC2412K	+9V AVR	
Q19	2SA1037K		
Q20	2SC2412K		
Q21	2SB1277(Q,R)	P-ANT SW	ON at Q22 base "H" during FM/AM reception
Q22	DTC114EK		
Q23	2SB1277(Q,R)	P-CON SW	On at Q26 base "H"
Q26	DTC114EK		
Q24	2SA1037K	Protection for P-CON SW	Activates when the P-CON output voltage drops
Q25	DTA124EK		
Q27	DTA124EK	CH2 control SW	CH2 on at base "L"
Q28	2SC2412K	BU detection	"H" when momentary power down detected
Q29	2SC2412K	ACC detection	"H" during ACC off
Q30	DTA124EK	Audio mute driver	Mute on at base "L"
Q32	2SC2412K	SPEANA AGC	Level control
Q33	DTC124EK	E-VOL. mute SW	Mute on at base "H"
Q34-37	2SD2114K	Audio mute SW	Mute on at base "H"
Q38	DTC114EK	SVR SW	On at base "L" when power on, on at base "H" when momentary power down detected
Q42	2SC2412K	Noise buffer	
Q43	DTC114TK	Noise detection time constant SW	Q43 base "L" during search, "H" during reception
Q44	DTA124EK		
Q45	DTC124EK	K21 WIDE/NARROW SW	Forced WIDE mode at base "H"
Q48	2SB1188 (Q,R)	AM +B SW	On during AM reception
Q49	DTC124EK		
Q50	2SB1188 (Q,R)	FM +B SW	On during FM reception
Q51	DTC124EK		
Q52	DTC144EK	VOLTAGE SW	On during MD
Q54,55	2SD2114K	Audio mute SW	Mute on at base "H"
Q58	DTA123JK	EX AMP CON SW	On at base "L"

● **DAUGHTER UNIT (X89-2380-10)**

Ref.No.	Component Name	Appication/Function	Operation/Condition/Compatibility
Q1	2SB1184	9V AVR	inverted darlington connection
Q2	2SC2412K		On during BU applied

MICRO COMPUTER'S TERMINAL DESCRIPTION

Microprocessor : UPD 78421GCO25 (IC1, X13-9390-10)

● Terminal Description

Pin.No.	Pin Name	I/O	Function	Description	Processing Operation
1	P120/RTP0	O	AMB	Illumination amber switch pin	Active:"H"
2	P121/RTP1	O	GRN	Illumination green switch pin	Active:"H"
3	P122/RTP2	I	KR1	Key return 1	
4	P123/RTP3	I	KR2	Key return 2	
5	P124/RTP4	I	KR3	Key return 3	
6	P125/RTP5	I	KR4	Key return 4	
7	P126/RTP6	I	KR5	Key return 5	
8	P127/RTP7	O	NC		
9	Vdd	–	VDD	Positive power supply pin	
10	X2	–	X2	Main clock connection pin	
11	X1	–	X1	Main clock connection pin	
12	Vss	–	VSS	GND pin	
13	XT2	–	XT2	Sub clock connection pin	
14	XT1	–	XT1	Sub clock connection pin	
15	RESET	I	RESET	Reset input pin	Active:"L"
16	P00/INTP0	I	REMO	Remote control input pin	
17	P01/INTP1	I	SOURCE	SRC key input pin	Active:"H"
18	P02/INTP2/NMI	O	NC		
19	P03/INTP3	I	MC REQ	Communication request input from system MI-COM.	
20	P04/INTP4	I	SC CON	Panel MI-COM.control input pin	Active:"H"
21	P05/INTP5	I	OPEN	OPEN key input pin	Active:"H"
22	P06/INTP6	O	NC		
23	AVdd	–	AVDD	A/D analog power supply pin	
24	AVref0	–	AVREF0	A/D reference voltage input pin	
25	P10/ANI0	I	F01	Analog input from B.P.F.IC out(63Hz)	
26	P11/ANI1	I	F02	Analog input from B.P.F.IC out(150Hz)	
27	P12/ANI2	I	F03	Analog input from B.P.F.IC out(330Hz)	
28	P13/ANI3	I	F04	Analog input from B.P.F.IC out(1kHz)	
29	P14/ANI4	I	F05	Analog input from B.P.F.IC out(3.3kHz)	
30	P15/ANI5	I	F06	Analog input from B.P.F.IC out(10kHz)	
31	P16/ANI6	I	Not use	connect to GND	
32	P17/ANI7	I	Not use	connect to GND	
33	AVss	–	AVSS	A/D GND pin	
34	P130/ANO0	O	NC		
35	P131/ANO1	O	NC		
36	AVref1	–	AVREF1	D/A reference voltage input pin	
37	P70/RxD2/SI2	O	NC		
38	P71/TxD2/SO2	O	NC		
39	P72/ASCK2/SCK2	O	NC		
40	P20/RxD1/SI1	I	MC DATA	Data line from system MI-COM.	
41	P21/TxD1/SO1	O	SC DATA	Data line to system MI-COM.	
42	P22/ASCK1/SCK1	I	MC CLK	Clock line with system MI-COM.	
43	P23/PCL	O	NC		
44	P24/BUZ	O	SC REQ	Communication request to system MI-COM.	
45	P25/SI0	O	VFD LAT	Latch output to FL driver	Active:"L"
46	P26/SO0	O	VFD DATA	Data line to FL driver	
47	P27/SCK0	O	VFD CLK	Clock line to FL driver	
48	P80/A0	O	NC		
49	P81/A1	O	NC		
50	P82/A2	O	NC		

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MICRO COMPUTER'S TERMINAL DESCRIPTION

Pin.No.	Pin Name	I/O	Function	Description	Processing Operation
51	P83/A3	O	NC		
52	P84/A4	O	NC		
53	P85/A5	O	NC		
54	P86/A6	O	NC		
55	P87/A7	O	NC		
56	P40/AD0	O	NC		
57	P41/AD1	O	NC		
58	P42/AD2	O	NC		
59	P43/AD3	O	NC		
60	P44/AD4	O	NC		
61	P45/AD5	O	NC		
62	P46/AD6	O	NC		
63	P47/AD7	O	NC		
64	P50/A8	O	NC		
65	P51/A9	O	NC		
66	P52/A10	O	NC		
67	P53/A11	O	NC		
68	P54/A12	O	NC		
69	P55/A13	O	NC		
70	P56/A14	O	NC		
71	P57/A15	O	NC		
72	Vss	–	VSS	GND pin	
73	P60/A16	O	NC		
74	P61/A17	O	NC		
75	P62/A18	O	NC		
76	P63/A19	O	NC		
77	P64/RD	O	NC		
78	P65/WR	O	NC		
79	P66/WAIT	O	NC		
80	P67/ASTB	O	NC		
81	Vdd	–	VDD	Positive power supply pin	
82	P100/TI5/TO5	O	NC		
83	P101/TI6/TO6	O	NC		
84	P102/TI7/TO7	O	NC		
85	P103/TI8/TO8	O	NC		
86	P30/TO0	O	VFD BLK	Blanking output to FL driver	Active:"L"
87	P31/TO1	O	NC		
88	P32/TO2	O	NC		
89	P33/TI1	O	KS1	Key scan 1	
90	P34/TI2	O	KS2	Key scan 2	
91	P35/TI00	O	KS3	Key scan 3	
92	P36/TI01	O	KS4	Key scan 4	
93	P37	O	REMO ON	Remote sensor power control output pin	Active:"L"
94	TEST	–	TEST	connect to GND	
95	P90	O	NC		
96	P91	O	NC		
97	P92	O	NC		
98	P93	O	NC		
99	P94	O	CATCH ILL	Catch illumination output pin	Active:"L"
100	P95	O	NC		

MICRO COMPUTER'S TERMINAL DESCRIPTION

Microprocessor : UPD 784215GCO99 (IC1, X25-824X-XX)

● **Terminal Description**

Pin.No.	Pin Name	I/O	Function	Description	Processing Operation
1	P120/RTP0	O	CHCON1	Changer 1 control pin	Active:"H"
2	P121/RTP1	I	CH MUTE	Changer mute input pin	Mute request:"H"
3	P122/RTP2	O	$\overline{\text{REQH}}$	Changer handshake request pin	Active:"L"
4	P123/RTP3	O	ILL ON	Illumination output pin	Active:"H"
5	P124/RTP4	O	MD/SRM	IC20 output voltage control pin	During MD:"H",During panel:"L"
6	P125/RTP5	I	PACK DET	DISC detection pin	Disc detection:"L"
7	P126/RTP6	I	LOS SW	Loading SW detection pin	On:"L"
8	P127/RTP7	O	MD+B	IC20 output on/off control pin	On:"H",off:"L"
9	Vdd	–	VDD	Positive power supply pin	
10	X2	–	X2	Main clock connection pin	
11	X1	–	X1	Main clock connection pin	
12	Vss	–	VSS	GND pin	
13	XT2	–	XT2	Sub clock connection pin	
14	XT1	–	XT1	Sub clock connection pin	
15	RESET	I	$\overline{\text{RESET}}$	Reset input pin	Active:"L"
16	P00/INTP0	O	CH RST	Changer reset output pin	Active:"H"
17	P01/INTP1	I	R CLK	RDS clock input pin	
18	P02/INTP2/NMI	I	$\overline{\text{REQC}}$	Changer handshake request pin	Active:"L"
19	P03/INTP3	I/O	O CE	OPEL DATA CHIP SELECT	
20	P04/INTP4	I/O	O CLK	OPEL DATA CLOCK	
21	P05/INTP5	I/O	O DATA	OPEL DATA LINE	
22	P06/INTP6	I	SC REQ	Communication request from panel MI-COM.	
23	AVdd	–	AVDD	A/D analog power supply pin	
24	AVref0	–	AVREF0	A/D reference voltage input pin	
25	P10/ANI0	I	PHONE	PHONE detection pin	1V or less:PHONE, 2.5 V or greater:NAVI MUTE
26	P11/ANI1	I	SRM SW1	SRM position detection pin	Open:"H"
27	P12/ANI2	I	NOISE	FM noise detection pin	
28	P13/ANI3	I	S METER	FM Smeter detection pin	
29	P14/ANI4	I	IF MODE	K2I IF mode detection pin	WIDE mode:"H",NARROW mode:"L"
30	P15/ANI5	I	NC		connect to GND
31	P16/ANI6	I	$\overline{\text{M MUTE R}}$	Mute request from MD mecha. MI-COM.	Mute request:"L"
32	P17/ANI7	I	$\overline{\text{M MUTE L}}$	Mute request from MD mecha. MI-COM.	Mute request:"L"
33	AVss	–	AVSS	A/D GND pin	
34	P130/ANO0	O	EXT AMP	External amp.control output pin	Active:"L"
35	P131/ANO1	O	$\overline{\text{M RST}}$	Reset output to MD mecha. MI-COM.	RESET:"L"
36	AVref1	–	AVREF1	D/A reference voltage input pin	
37	P70/RxD2/SI2	I	DATAC	Data line from changers	
38	P71/TxD2/SO2	O	DATAH	Data line to changers	
39	P72/ASCK2/SCK2	I/O	CH CLK	Clock line with changers	
40	P20/RxD1/SI1	I	SC DAT	Data input pin from panel MI-COM.	
41	P21/TxD1/SO1	O	MC DAT	Data output pin to panel MI-COM.	
42	P22/ASCK1/SCK1	O	M CLK	Clock output pin to panel MI-COM.	
43	P23/PCL	O	$\overline{\text{M STOP}}$	STOP request output pin to MD mecha. MI-COM.	STOP request:"L"
44	P24/BUZ	O	BEEP	BEEP output pin	Active:"H"
45	P25/SI0	O	PLL CE	CE output pin to PLL IC	
46	P26/SO0	O	PLL DATA	Data input/output pin with PLL IC	
47	P27/SCK0	O	PLL CLK	Clock output pin to PLL IC	
48	P80/A0	I	LOE SW	MD pack in detection pin	Active:"L"
49	P81/A1	O	EJECT	MD mecha. Load/eject selection output pin	Load:"L",eject:"H"
50	P82/A2	O	LOAD	MD mecha. Load/eject selection output pin	Load:"H",eject:"L"

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MICRO COMPUTER'S TERMINAL DESCRIPTION

Pin.No.	Pin Name	I/O	Function	Description	Processing Operation
51	P83/A3	O	NC		
52	P84/A4	O	NC		
53	P85/A5	O	PANEL RST	Reset output to panel MI-COM.	
54	P86/A6	O	MC REQ	Communication request output to panel MI-COM.	
55	P87/A7	O	NC		
56	P40/AD0	I	QUAL	RDS reception mode input pin	
57	P41/AD1	I	R DATA	RDS data input pin	
58	P42/AD2	O	SRM SUB-	Panel motor control (SRM)	
59	P43/AD3	O	SRM SUB+	Panel motor control (SRM)	
60	P44/AD4	I	$\overline{\text{SRM DET}}$	SRM mechanism detection pin	Mechanism:"L", No mechanism:"H"
61	P45/AD5	I	SRM SW2	SRM eject position detection pin	⌐: Eject position
62	P46/AD6	I	FM SD	FM SD input pin	Station:"H", No station:"L"
63	P47/AD7	O	NC		
64	P50/A8	O	$\overline{\text{AFC}}$	Noise detection time constant selection pin	During reception:"H",during search:"L"
65	P51/A9	O	NC		
66	P52/A10	O	WIDE	K2I forced wide output pin	Active:"H"
67	P53/A11	I/O	NARROW	K2I forced narrow output pin	Active:"H"
68	P54/A12	O	AM+B	AM power supply control pin	During AM reception:"H"
69	P55/A13	O	FM+B	FM power supply control pin	During FM reception:"H"
70	P56/A14	O	NC		
71	P57/A15	O	NC		
72	Vss	–	VSS	GND pin	
73	P60/A16	I	TYPE0	Destination type pin 0	
74	P61/A17	I	TYPE1	Destination type pin 1	
75	P62/A18	I	TYPE2	Destination type pin 2	
76	P63/A19	I	ST TYPE0	IC2 Ver.3 destination type pin 0	Initial value:"L"
77	P64/RD	I	ST TYPE1	IC2 Ver.3 destination type pin 1	Initial value:"L"
78	P65/WR	O	NC		
79	P66/WAIT	O	NC		
80	P67/ASTB	O	NC		
81	Vdd	–	VDD	Positive power supply pin	
82	P100/TI5/TO5	O	NC		
83	P101/TI6/TO6	O	SVR	Power IC reset pin	Power on:"L", when momentary power down detected:"H"
84	P102/TI7/TO7	O	NC		
85	P103/TI8/TO8	O	$\overline{\text{P MUTE}}$	Power IC mute pin	Active:"L"
86	P30/TO0	O	ANT CON	Antenna control pin	Active:"H"
87	P31/TO1	O	$\overline{\text{IC2 SCK}}$	IC2, IC5 EEPROM clock line	
88	P32/TO2	I	$\overline{\text{DIMMER}}$	Small detection pin	Active:"L"
89	P33/TI1	O	P CON	Power control pin	Active:"H"
90	P34/TI2	I	$\overline{\text{ACC DET}}$	ACC detection pin	ACC off:"H", ACC on:"L"
91	P35/TI00	O	NC	Remote control input pin	
92	P36/TI01	O	P ON	Microprocessor peripheral power supply control pin	Active:"H"
93	P37	I	$\overline{\text{BU DET}}$	BU detection pin	Momentary power down:"H"
94	TEST	–	TEST	Test pin	connect to GND
95	P90	I/O	$\overline{\text{IC2 SDA}}$	IC2, IC5 EEPROM data line	
96	P91	O	MUTE	Mute pin	Active:"H"
97	P92	O	$\overline{\text{SW5}}$	5V power supply control pin	Active:"L"
98	P93	O	MSCL	MD clock line	
99	P94	I/O	MSDA	MD data line	
100	P95	O	$\overline{\text{CHCON2}}$	Changer 2 control pin	Active:"L"

ADJUSTMENT

Set the controls and switches as follows.
BALANDCE :center position BASS :center position LOUD :OFF DOLBY :OFF
FADER :center position TREBLE :center position

No	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER (RECEIVER) SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION							
1	SEPARATION (NARROW) for Europe (K2I) model.*	98.1MHz 1kHz,±40kHz dev Pilot:±6.0kHz dev Selector:L or R 60dBμ (ANT input)	Connect a AC voltmeter to SP OUT	TEST MODE: ON (Forced Narrow) FM 98.1MHz	VR1 (X14-)	Adjust it so that the crosstalk from L to R and R to L become minimum.	
1	SEPARATION (NARROW) for K,M (K2I) model.*	98.1MHz 1kHz,±67.5kHz dev Pilot:±7.5kHz dev Selector:L or R 60dBμ (ANT input)	Connect a AC voltmeter to SP OUT	TEST MODE: ON (Forced Narrow) FM 98.1MHz	VR1 (X14-)	Adjust it so that the crosstalk from L to R and R to L become minimum.	
2	S METER VOLTAGE	98.1MHz 0 dev 35dBμ (ANT input)	–	TEST MODE: ON AM 98.1MHz	Preset "1" key, and preset "6" key	While holding preset "1" key, press and hold preset "6" key for a few seconds. "ADJ OK" is displayed if the adjustment is OK and "ADJ NG" is displayed if it is not good.	
AM SECTION							
(1)	S METER VOLTAGE	990 kHz 0% mod 35dBμ (ANT input)	–	TEST MODE: ON AM 990 MHz	Preset "1" key, and preset "6" key	While holding preset "1" key, press and hold preset "6" key for a few seconds. "ADJ OK" is displayed if the adjustment is OK and "ADJ NG" is displayed if it is not good.	

TEST MODE : ON (Forced Narrow)
While holding the "FM" key and preset "6" key, reset the unit.
Hold down the "TI" key for 2 second. "DUAL" goes ON.
Press preset "6" key. "P/S" goes OFF.

*Europe (K2I) model : KMD-PS970R
*K (K2I) model : KMD-X91
*M (K2I) model : KMD-PS970R

KMD-X91/PS970R

ADJUSTMENT

TEST MODE

(1) How to enter the test mode

Reset the set while holding the FM and preset 6 keys depressed.

All indications light up at the moment the test mode starts.

(2) How to exit from the test mode

Reset the set while holding the preset 6 key.

(Note) The test mode is not canceled by turning ACC OFF, turning power OFF or causing momentary power down.

(3) FM S meter voltage adjustment

1. Enter the test mode.
2. While holding the preset 1 key depressed, press and hold the preset 6 key.
3. "ADJ OK" is displayed when the result is OK or "ADJ NG" is displayed when it is No Good.

(4) AM SD voltage write

1. Enter the test mode.
2. While holding the preset 1 key depressed, press and hold the preset 6 key to write the SD voltage data.

(5) Forced Auto/Manual switching of K2I

Press and hold the TI key in the TUNER mode to switch between AUTO and MANUAL.

The initial status is MANUAL, which is indicated by the lighting of the DUAL dots.

(6) Forced Narrow/Wide switching of K2I

Press the preset 6 key in the TUNER mode to switch between Forced Narrow and Wide.

The initial status is Wide, which is indicated by the lighting of the P/S dot.

(7) Audio adjustments

- The volume should be set to -10 dB (displayed as "30").
- The bass/treble and balance/fader controls are set to full boost/full cut and full front/full rear respectively by single press of the UP/DOWN key.
- The high-pass filter is set to Through/100 Hz/200 Hz by each press of the UP key, or to 200 Hz/100 Hz/Through by each press of the DOWN key.
- Other adjustments are identical to normal operations.

(8) Back-up current measurement

When the set is reset while ACC is off (i.e. when the back-up power is on) or when ACC is turned off in the middle of test mode, the MUTE pin turns ON in 2 seconds instead of 15 seconds.

(The panel/CD/MD mechanism is not activated at this time.)

(9) Procedure for security code registration after the E2PROM replacement during servicing (M type only, except for the RDS models)

1. Enter the test mode (see "(1) How to enter the test mode").
2. Press the SRC key to select TUNER.
3. Press and hold the AUDIO key for 1 second to enter the menu mode.
4. Press the Track UP/DOWN key to select "SECURITY".
5. Press and hold the FM/AM key for 2 seconds.
6. Enter the security code by pressing the preset 1, 2, 3 and 4 keys.

   Example: To enter "3510"
   - Press preset key "1" 4 times.
   - Press preset key "2" 6 times.
   - Press preset key "3" 2 times.
   - Press preset key "4" 1 time.
7. Press and hold the DISP key for 3 seconds so that "APPROVED" is displayed.
8. Exit from the test mode (see "(2) How to exit from the test mode").

(10) Simplified security code clear procedure (K type only)

1. During the code request mode, while holding the DISP key depressed, press and hold the Volume UP key for 3 seconds (so that "——" disappears).
2. Enter "KCAR" from the remote control unit. (Same operation as with the '98 models)
   - Press numeric key "5" 2 times and press the Track UP key (to enter "K").
   - Press numeric key "2" 3 times and press the Track UP key (to enter "C").
   - Press numeric key "2" 1 time and press the Track UP key (to enter "A").
   - Press numeric key "7" 2 times and press the Track UP key (to enter "R").
3. The security is canceled and the set enters the TUNER mode.

(11) MASK key write procedure in production line (when the E2PROM is in the initial status)

1. While holding the FM and preset 6 keys depressed, press RESET to enter the test mode.
2. Press and hold the AUDIO key for 1 second to enter the menu mode.
3. Press the Track UP/DOWN key to select "Mask key".
4. Press the FM or AM key shortly so that "TRANSMIT1" is displayed.
5. Point the MASK key to the light sensor and press and hold the key for more than 0.5 second.
6. When "TRANSMIT2" is displayed, press and hold the MASK key again for more than 0.5 second. Note that the first and second counter codes are not compared at this time.
7. The write operation is complete when "APPROVED" is displayed.

   At this time, the demonstration mode is set and the test mode is canceled.

   (Note) Similarly to the '98 models, leaving the set for more than 30 minutes without writing the code causes an error and turns power off.

(12) Procedure for canceling the MASK key request (when the set is reset or the back-up power is turned off while the MASK key is enabled)

1. When the power is supplied and the set is switched on, "TRANSMIT1" is displayed and the MASK key request mode starts.
2. Point the MASK key toward the light sensor and press and hold for more than 3 seconds
   (until the level indicator indicates the full condition).
3. When "TRANSMIT2" is displayed, press and hold the MASK key again for more than 3 seconds.

ADJUSTMENT

If "TRANSMIT1" is displayed now, go back to step 2 and restart from there again.

4. When "APPROVED" is displayed, the MASK key is enabled and the set is turned on.

(13) Procedure for MASK key initialization (Resetting the MASK key enabled condition to the factory-set condition)

1. While holding the FM and preset 6 keys, press RESET to enter the test mode.
2. "TRANSMIT1" is displayed and the MASK key request mode starts.
   At this time, the display shows "* *" in place of "[ ]".
3. Press the MASK key cancel remote control for more than 3 seconds.
4. When "TRANSMIT2" is displayed, press and hold the MASK key again for more than 3 seconds.
5. When "APPROVED" is displayed, the MASK key is canceled, the demonstration mode is set, the test mode is canceled and the set returns to the factory-set condition.

(14) MASK key all-clear procedure

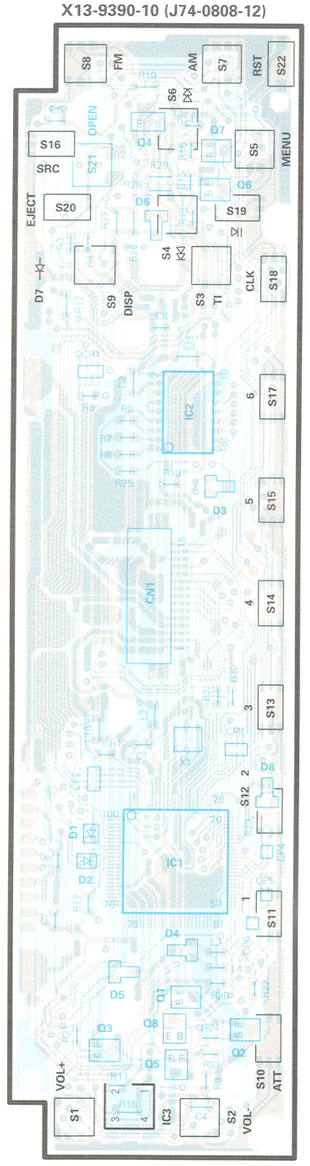
1. While holding the FM and preset 6 keys, press RESET to enter the test mode.
2. Press and hold the AUDIO key for more than 1 second to enter the menu mode.
3. Press the Track UP/DOWN key to select "Mask key".
4. Press and hold the FM or AM key for more than 2 seconds so that "TRANSMIT1" is displayed.
5. Point the MASK key cancel remote control toward the light sensor and press for more than 3 seconds (until the level indicator indicates the full condition).
6. When "TRANSMIT2" is displayed, press and hold the MASK key again for more than 3 seconds.
   If "TRANSMIT1" is displayed now, go back to step 5 and restart from there again.
7. When "APPROVED" is displayed, the E2PROM is cleared entirely and the condition in "(11) MASK key write procedure in production line (when the E2PROM is in the initial status)" returns.

(15) Other

- Automatic panel closing when the CD/MD is inserted is disabled.
- Pressing the ATT key ON/OFF opens or closes the panel.
  (The ATT operation can be activated from the remote control unit.)
- The DNPP/SNF key of the remote control unit (RC-510) functions as the menu mode ON/OFF key.
- The OPEN/CLOSE key of the remote control unit (RC-510) functions as the audio adjustment mode ON/OFF key.
- The menu feed operations occur only with the necessary features.
- The communication line for the Opel display does not stop communication even when it is not connected.
- Display such as "CODE OFF" is not displayed at the moment power is turned on.
- The dimmer control of the FL models or the contrast control of the LCD models can be adjusted only to 0/5/10 using the UP/DOWN keys.

PC BOARD (COMPONENT SIDE VIEW)

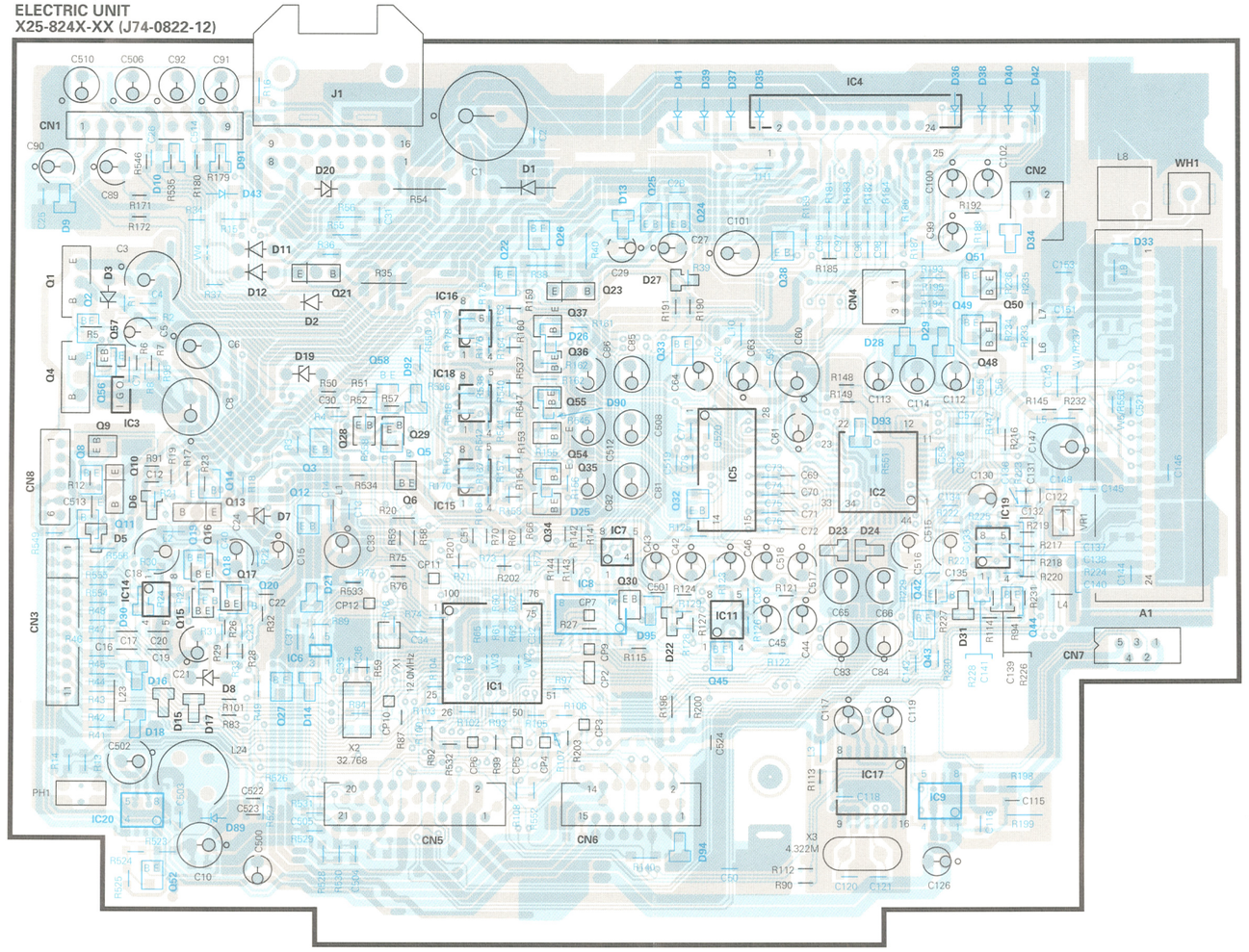
X13-9390-10 (J74-0808-12)



Ref No.	Adress
IC1	5A
IC2	3A
IC3	6A
Q1	5A
Q2	5B

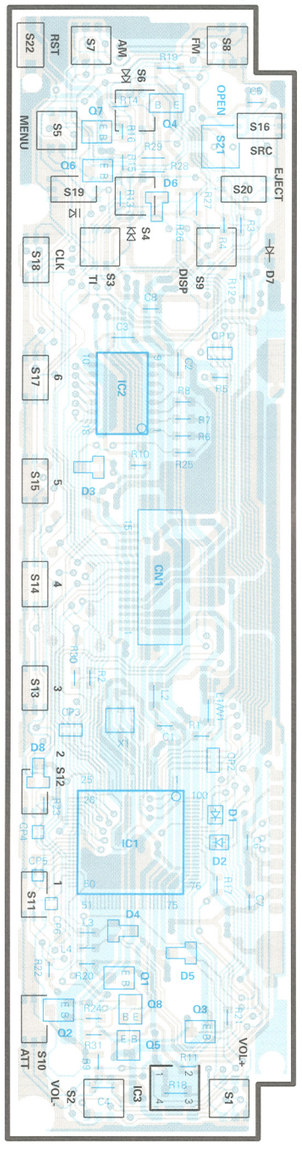
Ref No.	Adress
Q3	5A
Q4	2A
Q5	5A
Q6,7	2B
Q8	5A

ELECTRIC UNIT
X25-824X-XX (J74-0822-12)



PC BOARD (FOIL SIDE VIEW)

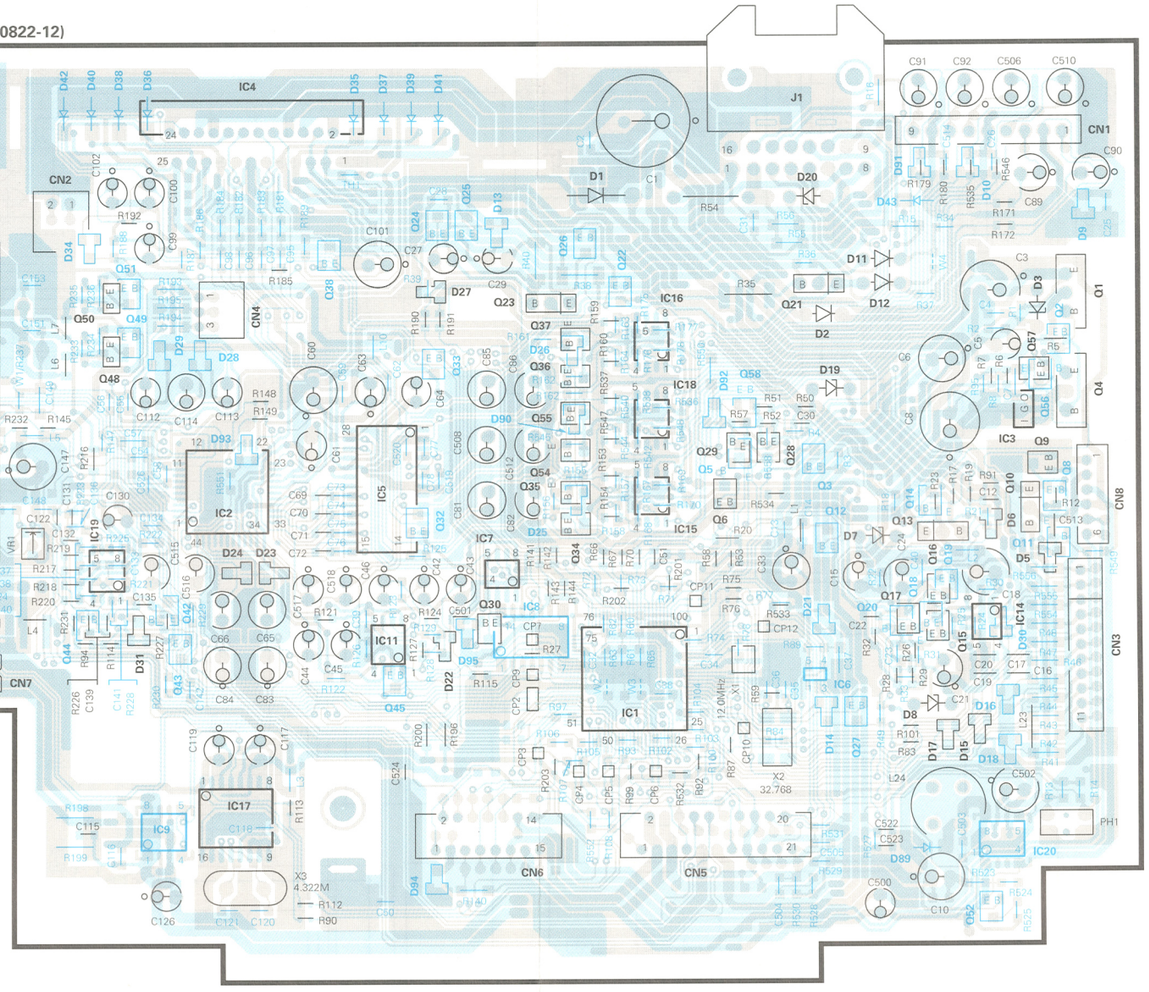
X13-9390-10 (J74-0808-12)



Ref No.	Adress
IC1	5J
IC2	3J
IC3	6J
Q1	5J
Q2	5J

Ref No.	Adress
Q3	5K
Q4	2J
Q5	5J
Q6,7	2J
Q8	5J

ELECTRIC UNIT
X25-824X-XX (J74-0822-12)



Ref No.	Adress
IC1	4N
IC2	3M
IC3	3P
IC4	2M
IC5	3N
IC6	4O
IC7	3N
IC8	4N
IC9	5M
IC11	4N
IC14	4P
IC15,16	3O
IC17	4M
IC18	3O

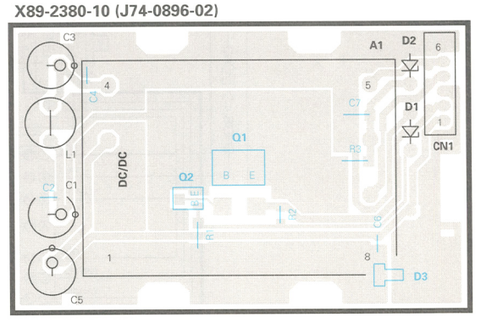
Ref No.	Adress
IC18,19	3O,3L
IC20	5P
Q1	2P
Q2	3P
Q3	3O
Q4	3P
Q5	3O
Q6	3O
Q8	3P
Q9	3P
Q10	3P
Q11	3P
Q12	3O
Q13	3P

Ref No.	Adress
Q14	3P
Q15	4P
Q16	3P
Q17	4P
Q18	4P
Q19	3P
Q20	4O
Q21	2O
Q22	2N
Q23	2N
Q24	2N
Q25	2N
Q26	2N
Q27	4O

Ref No.	Adress
Q28,29	3O
Q30	4N
Q32	3N
Q33	3N
Q34	3N
Q35	3N
Q36	3N
Q37	3N
Q38	2M
Q42	4M
Q43	4M
Q44	4L
Q45	4N
Q48	3M

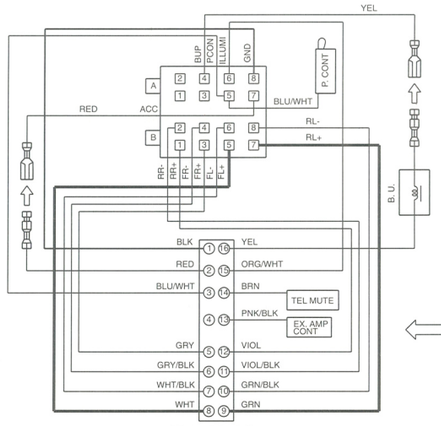
Ref No.	Adress
Q49	3M
Q50	3L
Q51	2M
Q52	5P
Q54,55	3N
Q56	3P
Q57	3P
Q58	3O

X89-2380-10 (J74-0896-02)

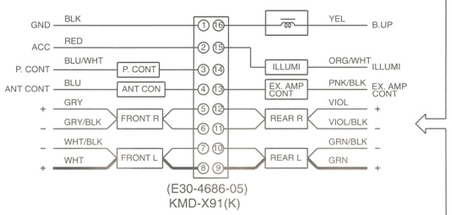


Ref No.	Adress
Q1	2R
Q2	2R

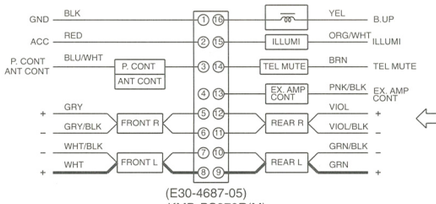
Refer to the schematic diagram for the values of resistors and capacitors.



(E30-4695-05)
KMD-PS970R(E)

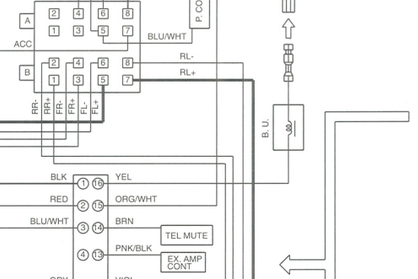


(E30-4686-05)
KMD-X91(K)



(E30-4687-05)
KMD-PS970R(M)

(X25-824x-xx)



(X89-)
Q1 : 2SB1184
Q2 : 2SC2412K

D1 : MA4110-L
D2 : MA4047(N)-L
D3 : DA204K

1	REQ H
2	GND
3	B.U
4	CHCON
5	MUTE
6	A GND
7	RST
8	Rch
9	REQ C
10	DATA C
11	DATA H
12	Lch
13	CLK

* CH CORD

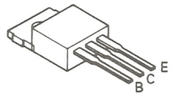
* CH CORD

(X25-824x-xx)

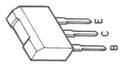
MODEL NAME	DESTINATION	UNIT No.	Ⓐ	Ⓑ	C12,145, 149,521	C38	D6	D30	R15,17,19,27,62, 93,97,1-5,237,553	R63, 91	R60,87, 554-556	R61	R94	R114	Q45	W1-3, 5	W4	VR1	A1	CN3	CP10	CH CORD
KMD-X91	K	0-10	NO	YES	NO	4700P	NO	NO	NO	YES	NO	YES	22K	160K	NO	YES	NO	NO	W02-3119-05	E40-3252-05	NO	E30-4705-05
KMD-PS970R	M	0-21	YES	NO	YES	1000P	YES	NO	YES	NO	NO	YES	27K	120K	YES	NO	YES	YES	W02-3163-05	E40-3252-05	NO	E30-4705-05
	E	2-71	YES	NO	YES	1000P	YES	YES	YES	NO	YES	NO	27K	120K	YES	NO	YES	YES	W02-3163-05	E40-3255-05	YES	E30-4707-05

DTA114YK
DTA123JK
DTA124EK
DTA144EK
DTC114EK
DTC114TK
DTC124EK
DTC144EK
2SC2412K
2SD2114K

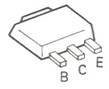
2SB1565



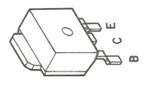
2SB1277
2SB1443



2SB1188

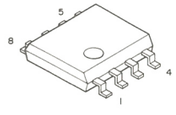


2SB1184

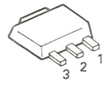


DAN202K

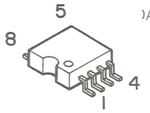
NJM4565M-TE2



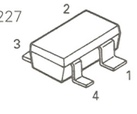
M5237ML



BR24CO1AF

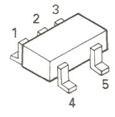


DA227

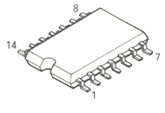


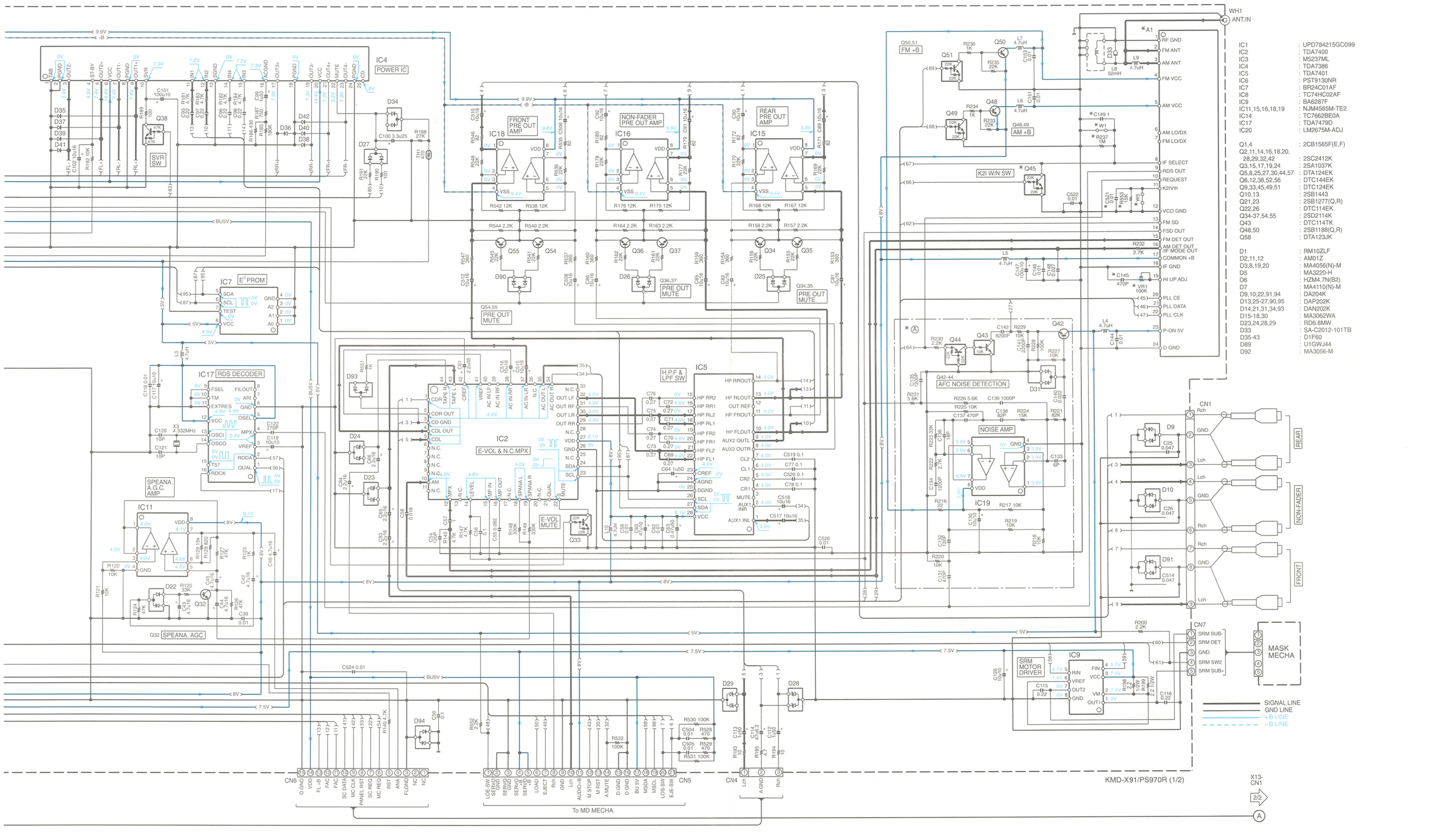
DA204K

PST9130NR



TC74HCO2AF





IC1	: UPD784215GC099
IC2	: TDA7400
IC3	: M5237ML
IC4	: TDA7386
IC5	: TDA7401
IC6	: PST9130NR
IC7	: BR24C01AF
IC8	: TC74HC02AF
IC9	: BA6287F
IC11,15,16,18,19	: NJM4565M-TE2
IC14	: TC7662BE0A
IC17	: TDA7479D
IC20	: LM2675M-ADJ
Q1,4	: 2CB1565F(E,F)
Q2,11,14,16,18,20, 28,29,32,42	: 2SC2412K
Q3,15,17,19,24	: 2SA1037K
Q5,8,25,27,30,44,57	: DTA124EK
Q6,12,36,52,56	: DTC144EK
Q9,33,45,49,51	: DTC124EK
Q10,13	: 2SB1443
Q21,23	: 2SB1277(Q,R)
Q22,26	: DTC114EK
Q34-37,54,55	: 2SD2114K
Q43	: DTC114TK
Q48,50	: 2SB1188(Q,R)
Q58	: DTA123JK
D1	: RM10ZLF
D2,11,12	: AM01Z
D3,8,19,20	: MA4056(N)-M
D5	: MA3220-H
D6	: HZM4.7N(B2)
D7	: MA4110(N)-M
D9,10,22,91,94	: DA204K
D13,25-27,90,95	: DAP202K
D14,21,31,34,93	: DAN202K
D15-18,30	: MA3062WA
D23,24,28,29	: RD6.8MW
D33	: SA-C2012-101TB
D35-43	: D1F60
D89	: U1GWJ44
D92	: MA3056-M

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

KMD-X91/PS970R

KENWOOD

T U V W X Y Z AA AB

(X13-9390-10)

ED1

IC1 : UPD784214GC025
IC2 : BA3830F
IC3 : RS-171

Q1 : DTA114YK
Q2 : DTA144EK
Q3,5 : DTC114EK
Q4 : 2SB1188(Q,R)
Q6,7 : 2SC2412K
Q8 : DTA124EK

D1,2 : DA227
D3 : MA3056-M
D4,5 : MA3062WA
D6 : MA3051-M
D7 : B30-1424-05

GND LINE
+B LINE

DTA114YK
DTA123JK
DTA124EK
DTA144EK
DTC114EK
DTC114TK
DTC124EK
DTC144EK
2SC2412K
2SD2114K

2SB1565

2SB1184

2SB1188

DAN202K

M5237ML

DA227

BR24CO1AF

NJM4565M-TE2

DA204K

2SB1277
2SB1443

TC74HCO2AF

PST9130NR

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

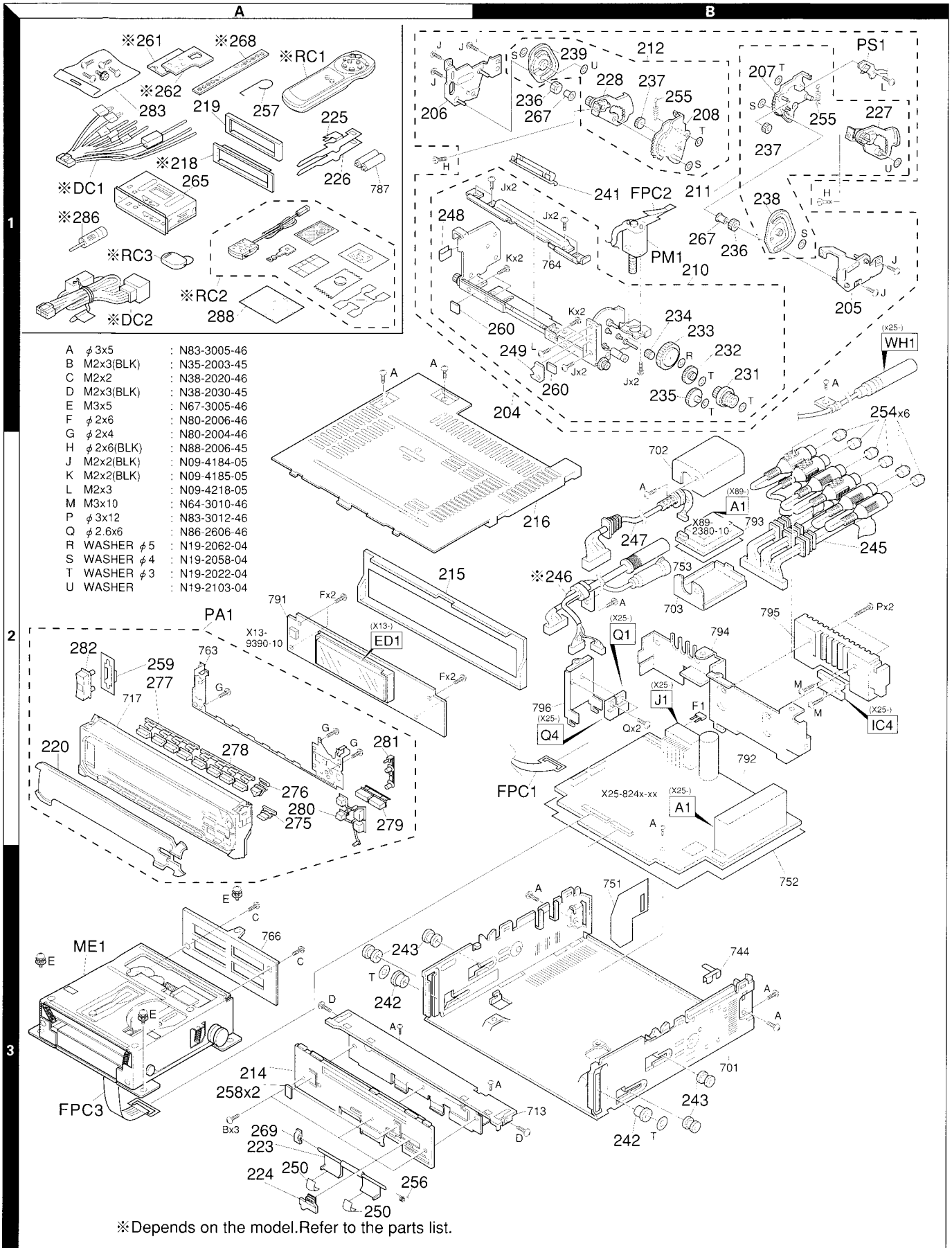
KMD-X91 (2/2)
KMD-PS970R (2/2)

KMD-X91/PS970R

KENWOOD

KMD-X91/PS970R

EXPLODED VIEW



A	φ3x5	:	N83-3005-46
B	M2x3(BLK)	:	N35-2003-45
C	M2x2	:	N38-2020-46
D	M2x3(BLK)	:	N38-2030-45
E	M3x5	:	N67-3005-46
F	φ2x6	:	N80-2006-46
G	φ2x4	:	N80-2004-46
H	φ2x6(BLK)	:	N88-2006-45
J	M2x2(BLK)	:	N09-4184-05
K	M2x2(BLK)	:	N09-4185-05
L	M2x3	:	N09-4218-05
M	M3x10	:	N64-3010-46
P	φ3x12	:	N83-3012-46
Q	φ2.6x6	:	N86-2606-46
R	WASHER φ5	:	N19-2062-04
S	WASHER φ4	:	N19-2058-04
T	WASHER φ3	:	N19-2022-04
U	WASHER	:	N19-2103-04

 Parts with the exploded numbers larger than 700 are not supplied.

KMD-X91/PS970R

PARTS LIST

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

Ref.No.	Add	New	Parts No.	Description	Destination
KMD-X91, KMD-PS970R					
204	1B	*	A10-4609-32	CHASSIS ASSY	
205	1B		A10-4315-04	CHASSIS CALKING ASSY	
206	1A		A10-4317-04	CHASSIS CALKING ASSY	
207	1B		A10-4319-04	CHASSIS CALKING ASSY	
208	1B		A10-4321-04	CHASSIS CALKING ASSY	
210	1B		A10-4534-23	CHASSIS ASSY	
211	1B		A10-4539-12	CHASSIS ASSY	
212	1B		A10-4541-12	CHASSIS ASSY	
214	3A	*	A22-2295-02	SUB PANEL	
215	2A	*	A46-1606-23	REAR COVER ASSY	
216	2B	*	A52-0742-12	TOP PLATE	
PA1	2A	*	A64-1693-22	PANEL ASSY	K
PA1	2A	*	A64-1694-22	PANEL ASSY	M1E1
RC1	1A		A70-0883-05	REMOTE CONTROLLER ASSY	KM1
RC2	1A		A70-0874-05	REMOTE CONTROLLER ASSY	E1
RC3	1A		A70-0886-05	REMOTE CONTROLLER ASSY	M1E1
218	1A		B07-2145-02	ESCUTCHEON	KM1
219	1A		B07-2146-03	ESCUTCHEON ASSY	
220	2A	*	B10-3029-11	FRONT GLASS	K
220	2A	*	B10-3030-11	FRONT GLASS	M1E1
-			B46-0100-50	WARRANTY CARD	
-			B46-0631-03	USER CARD	K
-		*	B46-0632-04	ID CARD	M1E1
-			B58-1255-04	CAUTION CARD	
-			B58-1278-04	CAUTION CARD	
-			B58-1309-04	CAUTION CARD	E1
-			B58-1310-04	CAUTION CARD	E1
-			B58-1319-04	CAUTION CARD	E1
-		*	B64-1406-00	"INST.MANUAL(ENG,FRE)"	K
-		*	B64-1407-00	INST.MANUAL(SPANISH)	K
-		*	B64-1408-00	"INST.MANUAL(ENG,CHI)"	M1
-		*	B64-1409-00	"INST.MANUAL(ENG,FRE)"	E1
-		*	B64-1410-00	"INST.MANUAL(GER,DUT)"	E1
-		*	B64-1411-00	"INST.MANUAL(ITA,SPA)"	E1
-		*	B64-1412-00	INST.MANUAL(PORTUGUESE)	E1
223	3A		D10-4299-03	ARM	
224	3A	*	D10-4300-24	LEVER	
225	1A		D10-4302-14	LEVER(L)	
226	1A		D10-4301-14	LEVER(R)	
227	1B		D10-4329-03	ARM ASSY	
228	1B		D10-4330-03	ARM ASSY	
231	1B		D13-1302-64	GEAR ASSY	
232	1B		D13-1306-24	GEAR	
233	1B		D13-1348-03	GEAR	
234	1B		D13-1349-04	GEAR	
235	1B		D13-1453-14	GEAR ASSY	
236	1B		D13-1312-34	GEAR	
237	1B		D13-1313-04	GEAR	
238	1B		D13-1455-13	GEAR ASSY	
239	1B		D13-1456-13	GEAR ASSY	
241	1B		D14-0678-04	ROLLER ASSY	
242	3B	*	D14-0716-04	ROLLER	
243	3B	*	D14-0723-04	ROLLER	
245	2B		E30-4700-05	CORD WITH PINPLUG	
246	2B	*	E30-4705-05	CORD WITH DIN CONNECTOR	KM1
246	2B	*	E30-4707-05	CORD WITH DIN CONNECTOR	E1
247	2B		E30-4706-05	CORD WITH CONNECTOR	
⚠ DC1	1A		E30-4686-05	DC CORD	K
⚠ DC1	1A		E30-4687-05	DC CORD	M1
⚠ DC2	1A		E30-4695-05	DC CORD	E1
248	1A		F09-1244-04	SHEET	
249	1B		F09-1294-04	SHEET	
250	3A		F09-1292-04	SHEET	
254	1B		F29-0049-05	INSULATING COVER	
⚠ F1	2B		F52-0006-05	FUSE(MINI BLADE TYPE)(10A)	
255	1B		G01-2818-24	EXTENSION SPRING	
256	3A		G01-2920-14	TORSION COIL SPRING	
257	1A		G01-2924-04	TORSION COIL SPRING	
258	3A		G11-1797-04	CUSHION	
259	2A	*	G11-1800-14	CUSHION	
260	1B		G11-1850-04	CUSHION	
288	1A		G11-1838-04	CUSHION	
-		*	H10-4631-12	POLYSTYRENE FOAMED FIXTURE	
-		*	H10-4638-12	POLYSTYRENE FOAMED FIXTURE	
-		*	H12-2658-04	PACKING FIXTURE	
-			H25-0329-04	PROTECTION BAG (280X450X0.03)	KM1
-			H25-0337-04	PROTECTION BAG (180X300X0.03)	
-			H25-1108-04	PROTECTION BAG (100X300X0.03)	
-			H25-1111-04	PROTECTION BAG (280X450X0.03)	E1
-		*	H54-1387-13	ITEM CARTON CASE	K
-		*	H54-1388-13	ITEM CARTON CASE	M1
-		*	H54-1389-13	ITEM CARTON CASE	E1
261	1A		J19-4876-04	BRACKET(L)	KM1
262	1A		J19-4875-04	BRACKET(R)	KM1
265	1A		J21-9367-03	MOUNTING HARDWARE ASSY	
267	1B		J31-1035-24	COLLAR	
268	1A		J54-0606-04	STAY	KM1
269	3A	*	J90-0923-04	GUIDE	
FPC1	2B		J84-0089-03	FLEXIBLE PRINTED WIRING BOARD	
FPC2	1B		J84-0062-23	FLEXIBLE PRINTED WIRING BOARD	
FPC3	3A	*	J84-0090-03	FLEXIBLE PRINTED WIRING BOARD	
275	2A	*	K24-1933-14	KNOB(AUD)	
276	2A		K24-1934-04	KNOB(SRC)	
277	2A		K25-0973-03	KNOB(ATT,P1-3)	
278	2A		K25-0974-03	KNOB(P4-6,CLK)	
279	2A		K25-0975-03	KNOB(UP,DOWN)	
280	2A	*	K25-0976-13	KNOB(FM,AM,EJECT,PLAY/PAUSE)	
281	3A		K25-0977-03	KNOB(DISP,AUTO/TI)	
282	2A	*	K25-0978-13	KNOB(VOL)	
283	1A		N99-1652-05	SCREW SET	KM1
A	1A		N83-3005-46	PAN HEAD TAPTITE SCREW	
B	3A		N35-2003-45	BINDING HEAD MACHINE SCREW	
C	3A		N38-2020-46	PAN HEAD MACHIN SCREW	
D	3B		N38-2030-45	PAN HEAD MACHIN SCREW	

K: KMD-X91 **M1**: KMD-PS970R **E1**: KMD-PS970R

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Ref.No.	Add	New	Parts No.	Description			Destination
E	3A		N67-3005-46	PAN HEAD SEMS SCREW			
F	2A		N80-2006-46	PAN HEAD TAPTITE SCREW			
G	2A		N80-2004-46	PAN HEAD TAPTITE SCREW			
H	1B		N88-2006-45	FLAT HEAD TAPTITE SCREW			
J	1B		N09-4184-05	MACHINE SCREW (M2X2)			
K	1B		N09-4185-05	MACHINE SCREW (M2X2)			
L	1B		N09-4218-05	MACHINE SCREW (M2X3)			
R	1B		N19-2062-04	FLAT WASHER			
S	1B		N19-2058-04	FLAT WASHER			
T	1B		N19-2022-04	FLAT WASHER			
U	1B		N19-2103-04	FLAT WASHER			
PS1	1B		S68-0829-05	PUSH SWITCH			
286	1A		T90-0523-05	ANTENNA ADAPTOR			E1
PM1	1B	*	T42-0752-34	MOTOR ASSY			
ME1	3A	*	X92-3580-00	MECHANISM ASSY			
SWITCH UNIT (X13-9390-10)							
D7			B30-1424-05	LED			
C1			CK73FB1H103K	CHIP C	0.010UF	K	
C2			C92-0628-05	CHIP-TAN	10UF	10WV	
C3 ,4			CK73EB1C225K	CHIP C	2.2UF	K	
C5 ,6			CK73FB1H103K	CHIP C	0.010UF	K	
C8			CK73FB1H103K	CHIP C	0.010UF	K	
CN1			E40-9941-05	FLAT CABLE CONNECTOR			
L2			L40-1015-34	SMALL FIXED INDUCTOR			
L3 ,4			L33-0385-05	SMALL FIXED INDUCTOR			
X1			L78-0683-05	RESONATOR (12MHZ)			
CP1			R90-0714-05	MULTI-COMP	10K X4		
CP2 ,3			R90-0724-05	MULTI-COMP	1K X4		
CP5 ,6			R90-0725-05	MULTI-COMP	1K X2		
R1 ,2			RK73FB2A102J	CHIP R	1.0K	J 1/10W	
R3 -5			RK73FB2A103J	CHIP R	10K	J 1/10W	
R6 ,7			RK73FB2A274J	CHIP R	270K	J 1/10W	
R8			RK73FB2A153J	CHIP R	15K	J 1/10W	
R9 ,10			RK73FB2A101J	CHIP R	100	J 1/10W	
R11			RK73FB2A823J	CHIP R	82K	J 1/10W	
R12			RK73EB2B221J	CHIP R	220	J 1/8W	
R13 ,14			RK73FB2A472J	CHIP R	4.7K	J 1/10W	
R15 ,16			RK73FB2A473J	CHIP R	47K	J 1/10W	
R17			RK73FB2A102J	CHIP R	1.0K	J 1/10W	
R18			RK73EB2B471J	CHIP R	470	J 1/8W	
R19			RK73EB2B331J	CHIP R	330	J 1/8W	
R20			RK73FB2A222J	CHIP R	2.2K	J 1/10W	
R21			RK73FB2A102J	CHIP R	1.0K	J 1/10W	
R22			RK73FB2A473J	CHIP R	47K	J 1/10W	
R24			RK73FB2A222J	CHIP R	2.2K	J 1/10W	
R25			RK73FB2A103J	CHIP R	10K	J 1/10W	
R26 ,27			RK73EB2B361J	CHIP R	360	J 1/8W	
R28 ,29			RK73EB2B183J	CHIP R	18K	J 1/8W	
R30			RK73FB2A102J	CHIP R	1.0K	J 1/10W	
R31			RK73FB2A103J	CHIP R	10K	J 1/10W	
W1			R92-2053-05	CHIP R	0	J 1/8W	

K: KMD-X91 **M1**: KMD-PS970R **E1**: KMD-PS970R

SWITCH UNIT (X13-9390-10)

Ref.No.	Add	New	Parts No.	Description			Destination
S1 -9			S70-0860-05	TACT SWITCH			
S10 -15			S70-0856-05	TACT SWITCH			
S16			S70-0857-05	TACT SWITCH			
S17 -20			S70-0856-05	TACT SWITCH			
S21			S68-0827-05	PUSH SWITCH			
S22			S70-0813-05	TACT SWITCH			
D1 ,2			DA227	DIODE			
D3			MA3056-M	ZENER DIODE			
D4 ,5			MA3062WA	ZENER DIODE			
D6			MA3051-M	ZENER DIODE			
ED1			CN1733M	INDICATOR TUBE			
IC1			UPD784214GC025	MI-COM IC			
IC2			BA3830F	ANALOGUE IC			
IC3			RS-171	ANALOGUE IC			
Q1			DTA114YK	DIGITAL TRANSISTOR			
Q2			DTA144EK	DIGITAL TRANSISTOR			
Q3			DTC114EK	DIGITAL TRANSISTOR			
Q4			2SB1188(Q,R)	TRANSISTOR			
Q5			DTC114EK	DIGITAL TRANSISTOR			
Q6 ,7			2SC2412K	TRANSISTOR			
Q8			DTA124EK	DIGITAL TRANSISTOR			
ELECTRIC UNIT (X25-824X-XX)							
C1			C90-2822-05	ELECTRO	3900UF	16WV	
C2			CK73FB1H103K	CHIP C	0.010UF	K	
C3			C90-2926-05	ELECTRO	220UF	16WV	
C4			CK73FB1H103K	CHIP C	0.010UF	K	
C5			C90-2594-05	ELECTRO	10UF	10WV	
C6			CE04CW0J101M	ELECTRO	100UF	6.3WV	
C7			CK73EB1C105K	CHIP C	1.0UF	K	
C8			CE04CW1A221M	ELECTRO	220UF	10WV	
C10			C90-2980-05	ELECTRO	220UF	16WV	
C12			CK73FB1H103K	CHIP C	0.010UF	K	M1E1
C13			CK73FB1H223KTA	CHIP C	0.022UF	K	
C14			CK73EB1C105K	CHIP C	1.0UF	K	
C15			C90-2595-05	ELECTRO	4.7UF	16WV	
C16 ,17			CK73EB1C225K	CHIP C	2.2UF	K	
C18			C90-2962-05	ELECTRO	100UF	16WV	
C19 ,20			CK73EB1C225K	CHIP C	2.2UF	K	
C21			CE04CW1C220M	ELECTRO	22UF	16WV	
C22			CK73FB1H223KTA	CHIP C	0.022UF	K	
C23			CK73FB1H103K	CHIP C	0.010UF	K	
C24			CE04CW1E100M	ELECTRO	10UF	25WV	
C25 ,26			CK73FB1E473KTA	CHIP C	0.047UF	K	
C27			C90-2598-05	ELECTRO	3.3UF	25WV	
C28			CK73FB1E683KTA	CHIP C	0.068UF	K	
C29			C90-2602-05	ELECTRO	0.10UF	50WV	
C30			CK73FB1H102K	CHIP C	1000PF	K	
C31 ,32			CK73FB1H103K	CHIP C	0.010UF	K	
C33			CE04CW0J470M	ELECTRO	47UF	6.3WV	
C34			CK73FB1H103K	CHIP C	0.010UF	K	
C35 ,36			CC73FCH1H220J	CHIP C	22PF	J	
C37			CK73EB1C105K	CHIP C	1.0UF	K	
C38			CK73FB1H102K	CHIP C	1000PF	K	M1E1
C38			CK73FB1H472K	CHIP C	4700PF	K	K

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KMD-X91/PS970R

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ELECTRIC UNIT (X25-824X-XX)

Ref.No.	Add	New	Parts No.	Description			Destination
C39			CK73FB1H103K	CHIP C	0.010UF	K	
C40			CK73EB1C225K	CHIP C	2.2UF	K	
C42 -46			C90-2595-05	ELECTRO	4.7UF	16WV	
C50			CK73FB1C104K	CHIP C	0.10UF	K	
C51			CK73FB1H103K	CHIP C	0.010UF	K	
C54			CC73FCH1H121J	CHIP C	120PF	J	
C55			CK73FB1C823K	CHIP C	0.082UF	K	
C56			CK73FB1C104K	CHIP C	0.10UF	K	
C57			CK73EB1C105K	CHIP C	1.0UF	K	
C58			CK73FB1H183KTA	CHIP C	0.018UF	K	
C59			CK73FB1H103K	CHIP C	0.010UF	K	
C60			CE04CW1A470M	ELECTRO	47UF	10WV	
C61			C90-2600-05	ELECTRO	2.2UF	35WV	
C62			CK73FB1H103K	CHIP C	0.010UF	K	
C63			C90-2606-05	ELECTRO	0.47UF	50WV	
C64			C90-2608-05	ELECTRO	1.0UF	50WV	
C65 ,66			C90-2533-05	ELECTRO	2.2UF	16WV	
C69 -76			CK73FB1C274K	CHIP C	0.27UF	K	
C77 ,78			CK73FB1C104K	CHIP C	0.10UF	K	
C81 ,82			C90-2536-05	ELECTRO	10UF	16WV	
C83 ,84			C90-2533-05	ELECTRO	2.2UF	16WV	
C85 ,86			C90-2536-05	ELECTRO	10UF	16WV	
C89 -92			C90-2536-05	ELECTRO	10UF	16WV	
C95 -98			CK73FB1C224K	CHIP C	0.22UF	K	
C99			C90-2935-05	ELECTRO	1.0UF	50WV	
C100			C90-2598-05	ELECTRO	3.3UF	25WV	
C101			CE04CW1A101M	ELECTRO	100UF	10WV	
C102			C90-2597-05	ELECTRO	10UF	16WV	
C112,113			C90-2608-05	ELECTRO	1.0UF	50WV	
C114			CE04CW0J470M	ELECTRO	47UF	6.3WV	
C115,116			CK73FB1C224K	CHIP C	0.22UF	K	
C117			C90-2594-05	ELECTRO	10UF	10WV	
C118			CK73FB1H103K	CHIP C	0.010UF	K	
C119			C90-2594-05	ELECTRO	10UF	10WV	
C120,121			CC73FCH1H100D	CHIP C	10PF	D	
C122			CC73FCH1H271J	CHIP C	270PF	J	
C126			C90-2594-05	ELECTRO	10UF	10WV	
C130			C90-2594-05	ELECTRO	10UF	10WV	M1E1
C131			CC73FCH1H471J	CHIP C	470PF	J	M1E1
C132			CC73FCH1H121J	CHIP C	120PF	J	M1E1
C133			CC73FCH1H060D	CHIP C	6.0PF	D	M1E1
C134,135			CC73FSL1H122J	CHIP C	1200PF	J	M1E1
C136			CC73FCH1H180J	CHIP C	18PF	J	M1E1
C137			CC73FCH1H471J	CHIP C	470PF	J	M1E1
C138			CC73FCH1H820J	CHIP C	82PF	J	M1E1
C139			CC73FSL1H102J	CHIP C	1000PF	J	M1E1
C140			CK73FB1H223KTA	CHIP C	0.022UF	K	M1E1
C141			CC73FSL1H222J	CHIP C	2200PF	J	M1E1
C142			CK73FB1H822K	CHIP C	8200PF	K	M1E1
C144			CK73FB1H103K	CHIP C	0.010UF	K	
C145			CC73FCH1H471J	CHIP C	470PF	J	M1E1
C146			CK73FB1H103K	CHIP C	0.010UF	K	
C147			CE04CW1A101M	ELECTRO	100UF	10WV	
C148			CK73FB1E273KTA	CHIP C	0.027UF	K	
C149			CK73EB1C105K	CHIP C	1.0UF	K	M1E1

Ref.No.	Add	New	Parts No.	Description			Destination
C151			CK73FB1H103K	CHIP C	0.010UF	K	
C153			CK73FB1H103K	CHIP C	0.010UF	K	
C500			C90-2608-05	ELECTRO	1.0UF	50WV	
C501			CK73FB1E473KTA	CHIP C	0.047UF	K	
C502			C90-2980-05	ELECTRO	220UF	16WV	
C503			CK73FB1H332K	CHIP C	3300PF	K	
C504,505			CK73FB1H103K	CHIP C	0.010UF	K	
C506			C90-2536-05	ELECTRO	0UF	16WV	
C508			C90-2536-05	ELECTRO	10UF	16WV	
C510			C90-2536-05	ELECTRO	10UF	16WV	
C512			C90-2536-05	ELECTRO	10UF	16WV	
C513			CK73EB1C474K	CHIP C	0.47UF	K	
C514			CK73FB1E473KTA	CHIP C	0.047UF	K	
C515,516			C90-2536-05	ELECTRO	10UF	16WV	
C517,518			C90-2597-05	ELECTRO	10UF	16WV	
C519,520			CK73FB1C104K	CHIP C	0.10UF	K	
C521-524			CK73FB1H103K	CHIP C	0.010UF	K	M1E1
C522-524			CK73FB1H103K	CHIP C	0.010UF	K	K
C526			CK73FB1H103K	CHIP C	0.010UF	K	
CN1			E40-5066-05	PIN ASSY			
CN2			E40-3299-05	PIN ASSY			
CN3			E40-3252-05	PIN ASSY			KM1
CN3			E40-3255-05	PIN ASSY			E1
CN4			E40-3261-05	PIN ASSY			
CN5			E40-9287-05	PIN ASSY			
CN6			E40-9399-05	FLAT CABLE CONNECTOR			
CN7			E40-5029-05	FLAT CABLE CONNECTOR			
CN8			E40-3250-05	PIN ASSY			
⚠ J1			E58-0836-05	RECTANGULAR RECEPTACLE			
WH1			E30-4440-05	CORD WITH PLUG			
WH1			E30-4568-15	CORD WITH PLUG			
L1			L40-4795-34	SMALL FIXED INDUCTOR			
L2			L40-2205-34	SMALL FIXED INDUCTOR(22UH)			
L3 -7			L40-4795-34	SMALL FIXED INDUCTOR			
L8			L33-1039-05	LINE FILTER COIL			
L9 ,10			L40-4795-34	SMALL FIXED INDUCTOR			
L23			L33-1094-05	SMALL FIXED INDUCTOR			
L24			L33-1121-05	CHOKE COIL			
X1			L78-0683-05	RESONATOR (12MHZ)			
X2			L78-0533-05	RESONATOR (32.768KHZ)			
X3			L77-2002-05	CRYSTAL RESONATOR(4.332MHZ)			
A	1A		N83-3005-46	PAN HEAD TAPTITE SCREW			
M	2B		N64-3010-46	PAN HEAD SEMS SCREW			
P	2B		N83-3012-46	PAN HEAD TAPTITE SCREW			
Q	2B		N86-2606-46	BINDING HEAD TAPTITE SCREW			
CP2			R90-0724-05	MULTI-COMP	1K X4		
CP3 -7			R90-0725-05	MULTI-COMP	1K X2		
CP9			R90-0725-05	MULTI-COMP	1K X2		
CP10,11			R90-1019-05	MULTI-COMP	100 X2		E1
CP11			R90-1019-05	MULTI-COMP	100 X2		KM1
CP12			R90-1013-05	MULTI-COMP	2.2K X2		
R1			RK73FB2A223J	CHIP R	22K	J 1/10W	
R2			RK73FB2A101J	CHIP R	100	J 1/10W	
R3			RK73FB2A223J	CHIP R	22K	J 1/10W	

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ELECTRIC UNIT (X25-824X-XX)

Ref.No.	Add	New	Parts No.	Description	Destination
R4			RK73FB2A562J	CHIP R 5.6K J 1/10W	
R5			RK73EB2B221J	CHIP R 220 J 1/8W	
R6			RK73FB2A153J	CHIP R 15K J 1/10W	
R7			R92-3032-05	CHIP R 4.3K D 1/10W	
R8			R92-3052-05	METAL GLAZE RESISTOR	
R12			RK73FB2A152J	CHIP R 1.5K J 1/10W	
R13			RK73FB2A471J	CHIP R 470 J 1/10W	
R14			RK73FB2A104J	CHIP R 100K J 1/10W	
R15			RK73EB2B752J	CHIP R 7.5K J 1/8W	M1E1
R16			RK73EB2B103J	CHIP R 10K J 1/8W	
R17			RK73GB1J223J	CHIP R 22K J 1/16W	M1E1
R18			RK73FB2A473J	CHIP R 47K J 1/10W	M1E1
R19			RK73GB1J102J	CHIP R 1.0K J 1/16W	M1E1
R20			RK73EB2B104J	CHIP R 100K J 1/8W	
R21			RK73FB2A102J	CHIP R 1.0K J 1/10W	
R22			RK73FB2A104J	CHIP R 100K J 1/10W	
R23			RK73FB2A750J	CHIP R 75 J 1/10W	
R24			RK73FB2A272J	CHIP R 2.7K J 1/10W	
R25			RK73FB2A470J	CHIP R 47 J 1/10W	
R26			RK73FB2A752J	CHIP R 7.5K J 1/10W	
R27			RK73GB1J102J	CHIP R 1.0K J 1/16W	M1E1
R28			RK73FB2A563J	CHIP R 56K J 1/10W	
R29			RK73FB2A913J	CHIP R 91K J 1/10W	
R30			RK73FB2A470J	CHIP R 47 J 1/10W	
R31			RK73FB2A103J	CHIP R 10K J 1/10W	
R32 ,33			RK73FB2A913J	CHIP R 91K J 1/10W	
R34			RK73FB2A472J	CHIP R 4.7K J 1/10W	K
R35			R92-0366-05	CHIP R 560 J 1W	K
R36			RK73FB2A223J	CHIP R 22K J 1/10W	K
R37			RK73FB2A472J	CHIP R 4.7K J 1/10W	
R38			R92-0365-05	CHIP R 1.0K J 1/2W	
R39			RK73FB2A223J	CHIP R 22K J 1/10W	
R40			R92-0365-05	CHIP R 1.0K J 1/2W	
R41			RK73EB2B472J	CHIP R 4.7K J 1/8W	
R42			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R43 -45			RK73EB2B470J	CHIP R 47 J 1/8W	
R46 -48			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R49			RK73FB2A104J	CHIP R 100K J 1/10W	
R50 ,51			RK73FB2A123J	CHIP R 12K J 1/10W	
R52			RK73FB2A562J	CHIP R 5.6K J 1/10W	
R53			RK73GB1J223J	CHIP R 22K J 1/16W	
R54			RD14DB2H332J	SMALL-RD 3.3K J 1/2W	
R55 ,56			RK73EB2B473J	CHIP R 47K J 1/8W	
R57			RK73FB2A622J	CHIP R 6.2K J 1/10W	
R58			RK73GB1J104J	CHIP R 100K J 1/16W	
R59			RK73FB2A684J	CHIP R 680K J 1/10W	
R60			RK73FB2A104J	CHIP R 100K J 1/10W	E1
R61			RK73FB2A104J	CHIP R 100K J 1/10W	K
R61 ,62			RK73FB2A104J	CHIP R 100K J 1/10W	M1
R62			RK73FB2A104J	CHIP R 100K J 1/10W	E1
R63			RK73FB2A104J	CHIP R 100K J 1/10W	K
R65			RK73FB2A104J	CHIP R 100K J 1/10W	
R66			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R67			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R70			RK73FB2A102J	CHIP R 1.0K J 1/10W	

Ref.No.	Add	New	Parts No.	Description	Destination
R71			RK73FB2A472J	CHIP R 4.7K J 1/10W	
R72 ,73			RK73FB2A562J	CHIP R 5.6K J 1/10W	
R74			RK73FB2A223J	CHIP R 22K J 1/10W	
R75			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R76			RK73GB1J470J	CHIP R 47 J 1/16W	
R77			RK73FB2A104J	CHIP R 100K J 1/10W	
R78			RK73FB2A470J	CHIP R 47 J 1/10W	
R83			RK73GB1J104J	CHIP R 100K J 1/16W	
R84			RK73FB2A102J	CHIP R 1.0K J 1/10W	
R87			RK73GB1J101J	CHIP R 100 J 1/16W	E1
R89			RK73FB2A104J	CHIP R 100K J 1/10W	
R90			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R91			RK73GB1J104J	CHIP R 100K J 1/16W	K
R92			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R93			RK73FB2A222J	CHIP R 2.2K J 1/10W	M1E1
R94			RK73FB2A223J	CHIP R 22K J 1/10W	K
R94			RK73FB2A273J	CHIP R 27K J 1/10W	M1E1
R95			R92-3052-05	METAL GLAZE RESISTOR	
R97			RK73FB2A102J	CHIP R 1.0K J 1/10W	M1E1
R99			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R100			RK73FB2A102J	CHIP R 1.0K J 1/10W	
R101			RK73GB1J104J	CHIP R 100K J 1/16W	
R102,103			RK73FB2A470J	CHIP R 47 J 1/10W	
R104			RK73FB2A104J	CHIP R 100K J 1/10W	
R105-108			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R112,113			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R114			RK73FB2A124J	CHIP R 120K J 1/10W	M1E1
R114			RK73FB2A164J	CHIP R 160K J 1/10W	K
R115			RK73FB2A102J	CHIP R 1.0K J 1/10W	M1E1
R121,122			RK73FB2A103J	CHIP R 10K J 1/10W	
R123			RK73FB2A102J	CHIP R 1.0K J 1/10W	
R124			RK73GB1J473J	CHIP R 47K J 1/16W	
R125			RK73FB2A333J	CHIP R 33K J 1/10W	
R126,127			RK73FB2A473J	CHIP R 47K J 1/10W	
R128			RK73FB2A821J	CHIP R 820 J 1/10W	
R129			RK73FB2A153J	CHIP R 15K J 1/10W	
R140			RK73EB2B472J	CHIP R 4.7K J 1/8W	
R141,142			RK73FB2A104J	CHIP R 100K J 1/10W	
R145			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R147			RK73FB2A472J	CHIP R 4.7K J 1/10W	
R148,149			RK73GB1J334J	CHIP R 330K J 1/16W	
R153,154			RK73FB2A361J	CHIP R 360 J 1/10W	
R155,156			RK73FB2A223J	CHIP R 22K J 1/10W	
R157,158			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R159,160			RK73FB2A361J	CHIP R 360 J 1/10W	
R161,162			RK73FB2A223J	CHIP R 22K J 1/10W	
R163,164			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R167,168			RK73FB2A123J	CHIP R 12K J 1/10W	
R169,170			RK73FB2A223J	CHIP R 22K J 1/10W	
R171,172			RK73FB2A820J	CHIP R 82 J 1/10W	
R175,176			RK73FB2A123J	CHIP R 12K J 1/10W	
R177,178			RK73FB2A223J	CHIP R 22K J 1/10W	
R179,180			RK73FB2A820J	CHIP R 82 J 1/10W	
R181-184			RK73FB2A472J	CHIP R 4.7K J 1/10W	
R185			RK73GB1J184J	CHIP R 180K J 1/16W	

K: KMD-X91 **M1**: KMD-PS970R **E1**: KMD-PS970R

⚠ indicates safety critical components.

KMD-X91/PS970R

PARTS LIST

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ELECTRIC UNIT (X25-824X-XX)

Ref.No.	Add	New	Parts No.	Description	Destination
R186			RK73FB2A431J	CHIP R 430 J 1/10W	
R187			RK73FB2A751J	CHIP R 750 J 1/10W	
R188			RK73FB2A273J	CHIP R 27K J 1/10W	
R189,190			RK73FB2A101J	CHIP R 100 J 1/10W	
R191			RK73FB2A223J	CHIP R 22K J 1/10W	
R192			RK73GB1J103J	CHIP R 10K J 1/16W	
R193,194			RK73EB2B100J	CHIP R 10 J 1/8W	
R195			RK73EB2B4R7J	CHIP R 4.7 J 1/8W	
R196			RK73EB2B104J	CHIP R 100K J 1/8W	
R198,199			R92-2021-05	CHIP R 2.2 J 1/2W	
R200			RK73EB2B222J	CHIP R 2.2K J 1/8W	
R201-203			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R216			RK73EB2B220J	CHIP R 22 J 1/8W	M1E1
R217-220			RK73FB2A103J	CHIP R 10K J 1/10W	M1E1
R221			RK73FB2A823J	CHIP R 82K J 1/10W	M1E1
R222			RK73FB2A272J	CHIP R 2.7K J 1/10W	M1E1
R223			RK73FB2A333J	CHIP R 33K J 1/10W	M1E1
R224			RK73FB2A153J	CHIP R 15K J 1/10W	M1E1
R225			RK73FB2A103J	CHIP R 10K J 1/10W	M1E1
R226			RK73FB2A562J	CHIP R 5.6K J 1/10W	M1E1
R227			RK73FB2A103J	CHIP R 10K J 1/10W	M1E1
R228			RK73FB2A104J	CHIP R 100K J 1/10W	M1E1
R229			RK73FB2A103J	CHIP R 10K J 1/10W	M1E1
R230			RK73FB2A222J	CHIP R 2.2K J 1/10W	M1E1
R231			RK73FB2A562J	CHIP R 5.6K J 1/10W	M1E1
R232			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R233			RK73FB2A223J	CHIP R 22K J 1/10W	
R234			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R235			RK73FB2A223J	CHIP R 22K J 1/10W	
R236			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R237			RK73FB2A105J	CHIP R 1.0M J 1/10W	M1E1
R523		*	R92-3022-05	METAL GLAZE RESISTOR	
R524		*	R92-3026-05	METAL GLAZE RESISTOR	
R525		*	R92-3029-05	METAL GLAZE RESISTOR	
R526			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R527			RK73FB2A473J	CHIP R 47K J 1/10W	
R528,529			RK73FB2A471J	CHIP R 470 J 1/10W	
R530-532			RK73FB2A104J	CHIP R 100K J 1/10W	
R533,534			RK73FB2A472J	CHIP R 4.7K J 1/10W	
R535			RK73FB2A820J	CHIP R 82 J 1/10W	
R536			RK73FB2A223J	CHIP R 22K J 1/10W	
R537			RK73FB2A361J	CHIP R 360 J 1/10W	
R538			RK73FB2A123J	CHIP R 12K J 1/10W	
R540			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R541			RK73FB2A223J	CHIP R 22K J 1/10W	
R542			RK73FB2A123J	CHIP R 12K J 1/10W	
R544			RK73FB2A222J	CHIP R 2.2K J 1/10W	
R545			RK73FB2A223J	CHIP R 22K J 1/10W	
R546			RK73FB2A820J	CHIP R 82 J 1/10W	
R547			RK73FB2A361J	CHIP R 360 J 1/10W	
R548			RK73FB2A223J	CHIP R 22K J 1/10W	
R549			RK73FB2A473J	CHIP R 47K J 1/10W	
R550			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R551			RK73FB2A102J	CHIP R 1.0K J 1/10W	
R552			RK73FB2A222J	CHIP R 2.2K J 1/10W	

Ref.No.	Add	New	Parts No.	Description	Destination
R553			RK73FB2A153J	CHIP R 15K J 1/10W	M1E1
R554-556			RK73EB2B471J	CHIP R 470 J 1/8W	E1
R558			RK73FB2A561J	CHIP R 560 J 1/10W	
VR1			R32-0229-05	SEMI FIXED VARIABLE RESISTOR	M1E1
W1 -3			R92-2052-05	CHIP R 0 J 1/10W	K
W4			R92-2052-05	CHIP R 0 J 1/10W	M1E1
W5			R92-2052-05	CHIP R 0 J 1/10W	K
PH1			T95-0231-05	OPTO ISOLATOR	
D1			RM10ZLF	DIODE	
D2			AM01Z	DIODE	
D3			MA4056(N)-M	ZENER DIODE	
D5			MA3220-H	ZENER DIODE	
D6			HZM4.7N(B2)	ZENER DIODE	M1E1
D7			MA4110(N)-M	ZENER DIODE	
D8			MA4056(N)-M	ZENER DIODE	
D9 ,10			DA204K	DIODE	
D11 ,12			AM01Z	DIODE	K
D12			AM01Z	DIODE	M1E1
D13			DAP202K	DIODE	
D14			DAN202K	DIODE	
D15 -18			MA3062WA	ZENER DIODE	
D19 ,20			MA4056(N)-M	ZENER DIODE	
D21			DAN202K	DIODE	
D22			DA204K	DIODE	
D23 ,24			RD6.8MW	ZENER DIODE	
D25 -27			DAP202K	DIODE	
D28 ,29			RD6.8MW	ZENER DIODE	
D30			MA3062WA	ZENER DIODE	E1
D31			DAN202K	DIODE	M1E1
D33			SA-C2012-101TB	SURGE ABSORBER	
D34			DAN202K	DIODE	
D35 -43			D1F60	DIODE	
D89			U1GWJ44	DIODE	
D90			DAP202K	DIODE	
D91			DA204K	DIODE	
D92			MA3056-M	ZENER DIODE	
D93			DAN202K	DIODE	
D94			DA204K	DIODE	
D95			DAP202K	DIODE	
IC1		*	UPD784215GC099	MI-COM IC	
IC2			TDA7400	ANALOGUE IC	
IC3			M5237ML	IC(VOLTAGE REGULATOR)	
IC4			TDA7386	ANALOGUE IC	
IC5			TDA7401	ANALOGUE IC	
IC6			PST9130NR	ANALOGUE IC	
IC7			BR24C01AF	MEMORY IC	
IC8			TC74HC02AF	IC	
IC9			BA6287F	ANALOGUE IC	
IC11			NJM4565M-TE2	ANALOGUE IC	
IC14			TC7662BEOA	ANALOGUE IC	
IC15,16			NJM4565M-TE2	ANALOGUE IC	
IC17			TDA7479D	ANALOGUE IC	
IC18			NJM4565M-TE2	ANALOGUE IC	K

K: KMD-X91 **M1**: KMD-PS970R **E1**: KMD-PS970R

⚠ indicates safety critical components.

PARTS LIST

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Ref.No.	Add	New	Parts No.	Description	Destination
IC18,19			NJM4565M-TE2	ANALOGUE IC	M1E1
IC20			LM2675M-ADJ	ANALOGUE IC	
Q1			2SB1565(E,F)	TRANSISTOR	
Q2			2SC2412K	TRANSISTOR	
Q3			2SA1037K	TRANSISTOR	
Q4			2SB1565(E,F)	TRANSISTOR	
Q5			DTA124EK	DIGITAL TRANSISTOR	
Q6			DTC144EK	DIGITAL TRANSISTOR	
Q8			DTA124EK	DIGITAL TRANSISTOR	
Q9			DTC124EK	DIGITAL TRANSISTOR	
Q10			2SB1443	TRANSISTOR	
Q11			2SC2412K	TRANSISTOR	
Q12			DTC144EK	DIGITAL TRANSISTOR	
Q13			2SB1443	TRANSISTOR	
Q14			2SC2412K	TRANSISTOR	
Q15			2SA1037K	TRANSISTOR	
Q16			2SC2412K	TRANSISTOR	
Q17			2SA1037K	TRANSISTOR	
Q18			2SC2412K	TRANSISTOR	
Q19			2SA1037K	TRANSISTOR	
Q20			2SC2412K	TRANSISTOR	
Q21			2SB1277(Q,R)	TRANSISTOR	K
Q22			DTC114EK	DIGITAL TRANSISTOR	K
Q23			2SB1277(Q,R)	TRANSISTOR	
Q24			2SA1037K	TRANSISTOR	
Q25			DTA124EK	DIGITAL TRANSISTOR	
Q26			DTC114EK	DIGITAL TRANSISTOR	
Q27			DTA124EK	DIGITAL TRANSISTOR	
Q28 ,29			2SC2412K	TRANSISTOR	
Q30			DTA124EK	DIGITAL TRANSISTOR	
Q32			2SC2412K	TRANSISTOR	
Q33			DTC124EK	DIGITAL TRANSISTOR	
Q34 -37			2SD2114K	TRANSISTOR	
Q38			DTC144EK	DIGITAL TRANSISTOR	
Q42			2SC2412K	TRANSISTOR	M1E1
Q43			DTC114TK	DIGITAL TRANSISTOR	M1E1
Q44			DTA124EK	DIGITAL TRANSISTOR	M1E1
Q45			DTC124EK	DIGITAL TRANSISTOR	M1E1
Q48			2SB1188(Q,R)	TRANSISTOR	
Q49			DTC124EK	DIGITAL TRANSISTOR	
Q50			2SB1188(Q,R)	TRANSISTOR	
Q51			DTC124EK	DIGITAL TRANSISTOR	
Q52			DTC144EK	DIGITAL TRANSISTOR	
Q54 ,55			2SD2114K	TRANSISTOR	
Q56			DTC144EK	DIGITAL TRANSISTOR	
Q57			DTA124EK	DIGITAL TRANSISTOR	
Q58			DTA123JK	DIGITAL TRANSISTOR	
TH1			PT722A80C	POSITIVE RESISTOR	
A1			W02-3119-05	FM/AM FRONT-END	K
A1			W02-3163-05	FM/AM FRONT-END	M1E1
DAUGHTER UNIT (X89-2380-10)					
C1			C90-2966-05	ELECTRO 100UF 16WV	
C2			CK73FB1H103K	CHIP C 0.010UF K	
C3			C90-2966-05	ELECTRO 100UF 16WV	

K: KMD-X91 **M1**: KMD-PS970R **E1**: KMD-PS970R

DAUGHTER UNIT (X89-2380-10)

Ref.No.	Add	New	Parts No.	Description	Destination
C4			CK73FB1H103K	CHIP C 0.010UF K	
C5			C90-2984-05	ELECTRO 47UF 50WV	
C6			CK73FB1H103K	CHIP C 0.010UF K	
C7			CK73EB1C225K	CHIP C 2.2UF K	
CN1			E40-3250-05	PIN ASSY	
L1			L33-1029-05	SMALL FIXED INDUCTOR	
R1			RK73EB2B473J	CHIP R 47K J 1/8W	
R2			RK73FB2A152J	CHIP R 1.5K J 1/10W	
R3			RK73EB2B103J	CHIP R 10K J 1/8W	
D1			MA4110-L	ZENER DIODE	
D2			MA4047(N)-L	ZENER DIODE	
D3			DA204K	DIODE	
Q1			2SB1184	TRANSISTOR	
Q2			2SC2412K	TRANSISTOR	
A1			W02-3169-05	ELECTRIC CIRCUIT MODULE	

⚠ indicates safety critical components.

KMD-X91/PS970R

SPECIFICATIONS

Specifications subject to change without notice.

KMD-X91

[FM tuner section]

Frequency range(Frequency step) ..... 87.9MHz–107.9MHz(200kHz)
Channel space selection 50k/200kHz
Usable sensitivity(S/N=30dB) ..... 9.3dBf(0.8μ V/75Ω)
Quieting sensitivity(S/N=50dB) ..... 15.2dBf(1.6μ V/75Ω)
Frequency response(±3.0dB) 30Hz–15kHz
S/N(MONO) 70dB
Selectivity ..... 80dB(±400kHz)
Stereo separation(1kHz) 40dB

[AM tuner section]

Frequency range(Frequency step) ..... 530kHz–1700kHz(10kHz)
Channel space selection 9k/10kHz
Usable sensitivity(S/N=20dB) ..... 28dBμ (25μ V)

[MD player section]

Laser diode ..... GaAlAs(λ=780nm)
Digital filter(D/A) ..... 8 times over sampling
D/A converter ..... 1 Bit
Frequency response ..... 20Hz–20kHz(±2dB)
T.H.D. ..... 0.01%(1kHz)
S/N(1kHz) 90dB
Dynamic range 90dB
Channel separation 85dB
Spindle speed ..... 400rpm–900rpm(CLV)
Wow & Flutter ..... Below measurable limit

[Audio section]

Preout level(mV)/Load ..... 4V/10kΩ(with CD-CH)
Preout impedance 80Ω
Maximum power 44Wx4
Rated power ..... 22Wx4(at less than 1%THD)
Tone action
Bass ..... 100Hz±10dB
Treble ..... 10kHz±10dB

[General]

Operating voltage ..... 14.4V(11V–16V allowable)
Current consumption ..... 10A(at rated power)
Installation size(WxHxD) ..... 182x53x162(mm)
7-3/16x2-1/16x6-3/8(inch)
Weight ..... 4.2lbs(1.9kg)

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KMD-PS970R

[FM tuner section]

Frequency range(Frequency step) ..... 87.5MHz–108.0MHz(50kHz)
Channel space selection 50kHzfix
Usable sensitivity(S/N=26dB) 0.7μ V/75Ω
Quieting sensitivity(S/N=46dB) 1.6μ V/75Ω
Frequency response(±3.0dB) 30Hz–15kHz
S/N(MONO) 65dB
Selectivity(DIN) ..... 80dB(±400kHz)
Stereo separation(1kHz) 35dB

[MW tuner section]

Frequency range(Frequency step) ..... 531kHz–1611kHz(9kHz)
Channel space selection 9kHzfix
Usable sensitivity(S/N=20dB) ..... 25μ V

[LW tuner section]

Frequency range 153kHz–281kHz
Usable sensitivity(S/N=20dB) ..... 45μ V

[MD player section]

Laser diode ..... GaAlAs(λ=780nm)
Digital filter(D/A) ..... 8 times over sampling
D/A converter ..... 1 Bit
Frequency response ..... 20Hz–20kHz(±2dB)
T.H.D. ..... 0.01%(1kHz)
S/N(1kHz) 90dB
Dynamic range 90dB
Channel separation 85dB
Spindle speed ..... 400rpm–900rpm(CLV)
Wow & Flutter ..... Below measurable limit

[Audio section]

Preout level(mV)/Load ..... 4V/10kΩ(with CD-CH)
Preout impedance 80Ω
Maximum power 44Wx4
Rated power
E type ..... 28Wx4(DIN45324,+B=14.4V)
M type ..... 22Wx4(at less than 1%THD)
Tone action
Bass ..... 100Hz±10dB
Treble ..... 10kHz±10dB

[General]

Operating voltage ..... 14.4V(11V–16V allowable)
Current consumption ..... 10A(at rated power)
Installation size(WxHxD) ..... 182x53x162(mm)
7-3/16x2-1/16x6-3/8(inch)
Weight ..... 4.2lbs(1.9kg)

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